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[01] I, Robert Sherwood, hereby submit this declaration on behalf of defendants BrandTotal Ltd. and Unimania, Inc. (collectively, "BrandTotal") in connection with the lawsuit captioned *Facebook, Inc. v. BrandTotal, Ltd. and Unimania, Inc.*, Case No. 3:20-cv-07182-JCS.

1. QUALIFICATIONS

[02] I currently serve as president of Identimap, Inc. a software development company. I earned an MS from the University of Kansas and an MBA with a major in operations research from California State College, Hayward. I have taught technology management courses at the University of Kansas, University of Missouri and Stanford University. I have an honorary doctorate from DeVry University.

[03] I have been professionally involved with computer and software technology for more than 40 years. I developed my first software program with FORTRAN and later used C++, HTML, and PHP. I have been engaged on litigations similar to the technologies associated with the dispute in this matter for the last 20 years. I was the first professional to design a software program that accessed a mainframe computer in Mountain View, California via telephone connection with an acoustic coupler from an office in London, England.

[04] I developed an on-line computer model that integrated complex engineering product designs from more than 30 different companies. I designed, directed, and approved all the source code development for this computer program that integrated more than 50 products into a single program that used more than 2,700 computer aided design variables. I directed an 18-person programmer development team in the introduction of an on-line software program (*Kiplinger Home Legal Advisor*) to process large business document files.

[05] I was president and co-founder of a company, backed by Kleiner Perkins, a leading San Francisco Bay Area venture capital firm. The company licensed products from European countries. I developed the

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embedded computer technology source code in these products. The company was highlighted in Business Week, Fortune Magazine, and was selected as one of the ten most innovative companies in California.

[06] I was co-founder of RasterOps, a company that developed the software that enables computers to display 16.7 million colors.

[07] I developed the subject matter content for the American Management Association for a two-day seminar on Internet technology. The seminar included a section on how to recognize fraud in source code. I presented the seminar to more than 2,500 participants from more than 50 different companies.

[08] I have consulted for both plaintiffs and defendants in litigation matters regarding software development, patents, and related technology issues. I have written more than 50 expert reports and have testified at trial or depositions on approximately 30 occasions. I provide consulting services to private and public corporations, law firms, venture capital firms, and government institutions. A copy of my curriculum vitae is provided in Appendix A.

2. SCOPE OF ASSIGNMENT AND COMPENSATION

[09] I have been retained by BrandTotal to review, analyze, and evaluate the UpVoice browser extension that BrandTotal made available through the Google Chrome Store between May 2020 and October 2020 (which I will call “UpVoice Legacy”), and the revised UpVoice that I understand BrandTotal will make, or has made, available in 2021 through browsers, including the Google Chrome and Microsoft Edge browsers, and for download for non-mobile computers (PCs, laptops, etc.) operating the Microsoft Windows OS (which I will call “UpVoice 2021”).

[10] My billing rate for my services is \$610 per hour. A technical associate also assisted me, and is compensated for his services at \$435 per hour. I have reviewed all of my associate’s work, and the entirety of the opinions in this report are my own.

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[11] A full list of the materials I considered in forming the opinions I have set forth in this report are attached as Appendix B to my report.

3. SUMMARY OF OPINIONS

[12] After reviewing BrandTotal's internal documents, the deposition transcripts of BrandTotal employees, and, most importantly, reviewing the source code for the UpVoice software, it is my opinion the UpVoice extensions and desktop application collect only the information its Panelists have agreed to provide (i.e., information that is expressly disclosed in the UpVoice Terms of Service and FAQ), and does so in a safe and secure manner that protects Panelists' data.

[13] On February 18, 2021, I submitted a declaration (the "February 18 Sherwood Declaration") in support of BrandTotal's Motion for Preliminary Injunction, which I am informed was filed that same day. I understand BrandTotal subsequently withdrew its motion and supporting materials, including my declaration. I further understand BrandTotal intends to file a second motion for preliminary injunction asking the Court for relief regarding UpVoice 2021. I have reviewed the February 18 Sherwood Declaration and use much of the same material in this declaration. I have corrected a few typos and grammatical errors. I have also updated my opinions regarding UpVoice 2021, which at the time of my earlier declaration was in the design and development stage and had not been coded. It remains my opinion that UpVoice—both UpVoice Legacy and UpVoice 2021—collect only the information BrandTotal discloses it will collect, and does so in a safe and secure manner.

[14] All Facebook users from whom UpVoice/BrandTotal collects data (who BrandTotal calls "Panelists") first complete a qualification questionnaire, wherein the Panelists provide demographic information (e.g., the Panelist's full name, email, relationship status, age, gender, country, and city) about themselves. Whereas UpVoice Legacy re-collected this Panelist information from Facebook,

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UpVoice 2021 does not, instead relying exclusively on the information the Panelist provides via the qualification questionnaire.

[15] Both UpVoice Legacy and UpVoice 2021 allow Panelists to share their information from one platform (Facebook) to another platform (UpVoice/BrandTotal). It is therefore my opinion UpVoice allows Panelists to transfer their data and information from one platform to another without being required to re-enter that data and is therefore meets the definition of data portability adopted by the International Organization for Standardization.

[16] It is my opinion it would have taken a reasonable reviewer, knowledgeable in source code procedures and that possessed standard review software programs, approximately 30 hours to review the UpVoice Legacy extension code and determine what information was, and was not, being collected and how that information was transmitted. A person familiar with UpVoice Legacy would be able to review UpVoice 2021 in even less time.

[17] It is my opinion BrandTotal cannot obtain the majority of information it needs to conduct its business from Facebook's approved APIs or Ad Library. [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

[REDACTED] It is therefore my opinion that BrandTotal cannot obtain the information it currently automatically collects from Facebook through any "approved" Facebook channel.

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4. BACKGROUND & OVERVIEW

4.1 Overview of BrandTotal and the UpVoice Extensions

[18] According to its website, “BrandTotal is a real time competitive intelligence platform designed to give media, insights, and analytics teams full visibility into their competition’s social media strategy.” (<https://www.brandtotal.com/>, last accessed March 11, 2021.)

[19] Through its UpVoice browser extension, BrandTotal collects data regarding advertisements shown to consumers on various social media sites, including Facebook. That information is deidentified and aggregated to protect Panelists’ privacy. BrandTotal then analyzes the cumulative information to provide industry analytics, competitive analysis and “insights”, the ability to monitor the customer’s own advertising campaign, and the ability to explore what advertisements are being shown to users of a certain age or gender. (See Dor Dep. Tr., 192:8–199:16, Jan. 11, 2021.)

[20] For example, BrandTotal provided a *Paid Social Snapshot Report: Automotive Brands*, which “contains data measure: social share of voice; best performing ad creatives; most viewed videos; and industry-wide ad sentiment analysis.” (See <https://info.brandtotal.com/paid-social-snapshot-report-automobile>, last accessed March 11, 2021.)

[21] BrandTotal’s analytics have been featured in numerous publications:

BrandTotal analytics featured in:
ADWEEK AdAge ClickZ DIGIDAY M MediaPost FST COMPANY

(<https://info.brandtotal.com/paid-social-snapshot-report-automobile>, last accessed March 11, 2021.)

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[22] BrandTotal provides advertising analytics services to customers that seek to improve and perfect their social media strategy. BrandTotal's customers include, or have included, Discover, Mercedes-Benz, Samsung, and other prominent companies known worldwide.

[23] On May 1, 2019, BrandTotal launched UpVoice via the Google Chrome Web Store. (BT0001560 at 1562; Dor. Dep. Tr., 70:15–18.)

[24] To become a Panelist, a social media user first goes to the webpage www.joinupvoice.com. I note that, if the user were to click on the “FAQ” section of the website, the user could easily see an overview of how UpVoice works:

How does UpVoice work?

If you qualify to become an UpVoice panelist, you will get a link to install the UpVoice application which is currently available in two forms - an app for Windows 10 PC or an extension for the Edge browser. Please use one version only.

Then, as you browse through Twitter, YouTube, LinkedIn, and Amazon, we anonymously collect data about the ads you see and give you daily tokens that can later be redeemed for a selection of e-gift cards.

We are a market research firm and therefore the data we collect is only used for providing brand marketers with advertising campaign insights.

Please make sure to stay signed in and disable your ad-blocker, or we wouldn't be able to detect any activity from your side. If you're using UpVoice for Windows, make sure that the Windows app is connected (the app's icon should be colorful).

(<https://www.joinupvoice.com/faq> (last accessed March 11, 2021).)

[25] The UpVoice FAQ also provides answers to the following questions: “what type of data do you collect about me?”; “what is my data used for?”; and “do you protect my privacy”?:

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What type of data do you collect about me?

We collect your name, email address and basic demographic information for the purposes of communicating with you, verifying your eligibility for participation in the Panel and in order to issue your reward (directly or via third party providers).

We also collect non-personal data such as: a random generated device ID and user ID, general demographic information (such as: age, gender, location and interests) and the ads you are exposed to while using Twitter, YouTube, LinkedIn, and Amazon.

On occasion, you may also share additional information with us by filling out research surveys that we make available to you.

All the data collected is ALWAYS anonymized and aggregated, so no one can identify you.

For more information, please review our detailed [privacy policy](#).

What is my data used for?

We are a market research firm. We work with brand marketers to provide them with advertising campaign insights and analyses. Please visit www.brandtotal.com for more information about the types of services we offer.

Do you protect my privacy?

Of course we do! As a market research firm, protecting your privacy and complying with all relevant privacy laws and regulations is our biggest concern.

All the data we share is always anonymized and aggregated. We never share your personal information with anyone, except if needed to send you your rewards.

For more information, please review our detailed [privacy policy](#).

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(*Id.*)

[26] The UpVoice FAQ also provides a link to the UpVoice privacy policy. I have attached a copy of the privacy policy as appendix C to my report. Collectively, by reading the FAQ and privacy policy, a prospective-Panelist would learn that BrandTotal collects the following information from the user when the user signs up to be a Panelist: (1) Name (first, last); (2) Email address; (3) Date of birth (month and year only); (4) Gender; (5) Relationship status; (6) country; (7) City; (8) State (US only); and (9) General demographic and profile information (collected from the qualification form). (https://privacy.joinupvoice.com/privacy_policy.pdf (last accessed March 11, 2021)). A prospective-Panelist would also learn that if they were to use the UpVoice program, BrandTotal would also collect: (1) A randomly generated device identification and user identification; (2) Data about sponsored campaigns, sponsored posts or advertisements that target the prospective-Panelist directly or that have been shared with the prospective-Panelist; and (3) General demographic and profile information from the prospective-Panelist's profile, such as the prospective-Panelist's age, gender, location (by region), relationship status, and general interests. *Id.* Finally, the prospective-Panelist would learn BrandTotal may collect additional information *if* the prospective-Panelist chooses to answer certain survey questions. *Id.*

[27] If the prospective-Panelist still desires to use UpVoice after reading the FAQ and/or privacy policy, the prospective-Panelist may click the "sign up" button on the joinupvoice.com home page. The prospective-Panelist must then sign in with one of multiple log in options, including Google, Microsoft, or Yahoo!:

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[28] After signing in, the prospective-Panelist then fills out a “Panelist questionnaire”:

A screenshot of the UpVoice panelist questionnaire form. The title is "Become a qualified member". It asks for personal information: Full Name, Email, Relationship Status, Month of Birth, Year of Birth, Gender, Country, and City. It also includes a link to the Privacy Policy and two checkboxes for agreeing to the Terms of Service and a participation agreement. A "SUBMIT" button is at the bottom.

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[29] A link to the “Privacy Policy” is again provided when the prospective-Panelist fills out the questionnaire to become a Panelist. The prospective-Panelist also must signify they have read and agree to the Terms of Service of the UpVoice panel.

[30] Section 5.1 (“Data”) of the Terms of Service provides:

5.1. In order to participate in the Panel and provide you with the Tokens and the Rewards, during your participation in the Panel, while you use third party mobile applications and/or websites (social media and/or others), (i) we will collect and store data which includes a randomly generated device ID and user ID as well as data about sponsored campaigns, sponsored posts or advertisements that target you directly or that have been shared with you on specific mobile applications, social media and/or other websites, as applicable; and (ii) we will complement these data with general demographic and profile information, which we collect from you as part of your registration/qualification to the Panel App and/or from your Facebook profile, like your age, your gender, where you live (by region), your relationship status and your general interests. You may also provide us with, and we may collect, additional information when you answer certain survey questions. All of the data collected and/or provided by you as described in this Section 5.1 shall be referred to hereinafter as “Panel Data”.

(<https://www.joinupvoice.com/tos#toc-5-data> (last accessed March 11, 2021)).

[31] Once the prospective-Panelist submits the complete questionnaire (and has indicated they agree to the Terms of Service), they submit the application. If approved, the Panelist then receives an email congratulating them on qualifying to become a Panelist. This email also informs the Panelist they will be asked to enable UpVoice on **each** website from which UpVoice collects data:

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Congratulations! You have qualified to become an active member of our exclusive panel.

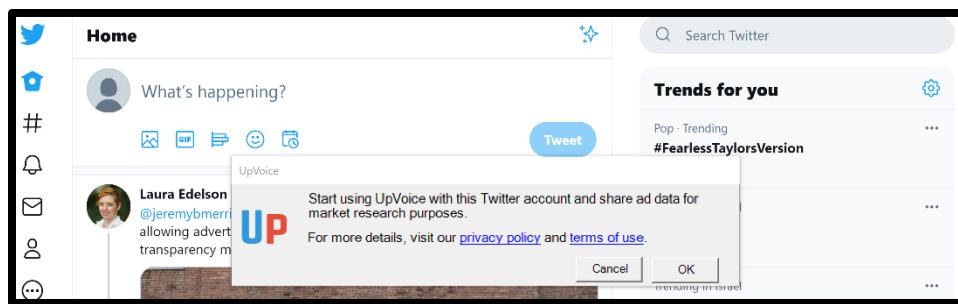
Now you can start earning daily points for visiting the social media feeds you normally visit. When you browse through **Twitter**, **YouTube**, **LinkedIn**, and **Amazon** on **desktop**, we anonymously collect the ads you see and give you daily points that can later be redeemed for a variety of gift cards.

The next time you visit each of these sites, you will be asked to enable UpVoice there. **UpVoice wouldn't be activated at any of these sites prior to your permission.**

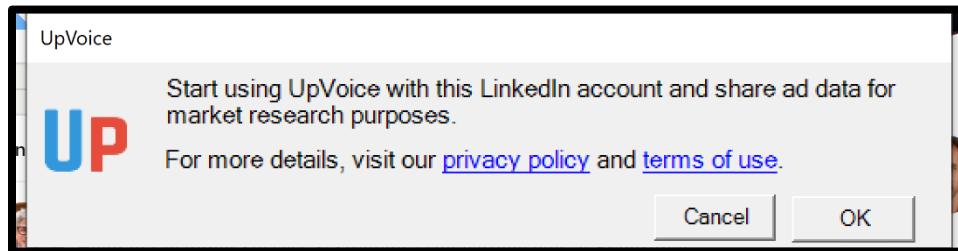
In order to confirm your membership and verify your email address, please click the button below.

VERIFY

[32] Once the Panelist visits a website (e.g., Twitter, Facebook, etc.) from which UpVoice has been given permission by a Panelist to collect data, UpVoice begins to collect data. If the Panelist logs out of their social media account and into a new account, UpVoice prompts the user to confirm they agree to “[s]tart using UpVoice with this [social media] account and share ad data for market research purposes.”



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[33] In the two sections below, I discuss the operation of UpVoice Legacy and UpVoice 2021. Although these versions have some differences—primarily in whether the Panelist’s demographic information is collected from Facebook’s servers in addition to the qualification questionnaire (UpVoice Legacy) or solely collected from the qualification questionnaire (UpVoice 2021)—both versions of UpVoice serve to facilitate the transfer of information (including advertising information) the Panelist has seen from one service (Facebook) to another service (BrandTotal).

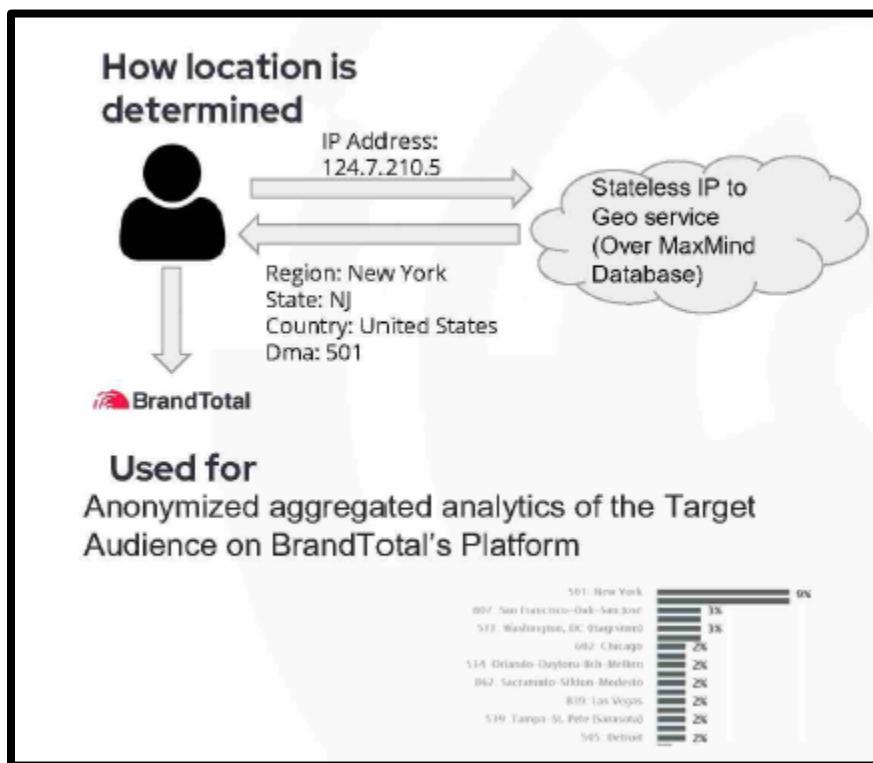
4.1.1.1 UpVoice Legacy

[34] Based on my review of documents BrandTotal has produced in this litigation, UpVoice Legacy collected three general fields of information, including the hashed device ID, which allowed BrandTotal to cleanse duplicated events (same user, same ad, approximately the same time). (BT0001560 at 565.) UpVoice Legacy also collected the browser user agent, which is “a string format that helps to understand the product and version a user uses.” (*Id.* at 567.) The browser user agent is not something only UpVoice collected but is rather “shared with every website [a user] visit[s] and used for analytics of traffic.” (*Id.*) Collecting the browser user agent allowed BrandTotal to perform debugging. (*Id.*) For example, events are not collected “right at Chrome v. 85.0.4082.17.” *Id.* at 560. Finally, UpVoice Legacy collected the hashed Panelist ID, which allows BrandTotal to measure panel volumes (e.g., count of Daily Active Users). (*Id.*) Collecting the hashed Panelist ID was also necessary for BrandTotal to provide Panelists with the compensation in exchange for their reports. As noted below, since May 2018 UpVoice has used random salt to hash the Panelist identification. (Dor Dep. Tr., 156:10–157:1, , Jan. 11, 2021.)

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[35] UpVoice Legacy also collected Facebook user demographics, which were used to provide anonymized aggregated analytics on BrandTotal's platform. (*Id.* at 568.) These demographics include the user's gender, date of birth (month and year only), location (state and country only), relationship status, and "user interests." (*Id.*) A Facebook's "user interests" are "determined by Facebook based on analyzing the groups a Facebook user follows [sic], the ads he interacts with and other activities he performs," and "helps advertisers target audience based on their related interests." (*Id.* at 569; *see also* <https://www.facebook.com/business/m/interest-targeting>, last accessed March 11, 2021.)

[36] UpVoice Legacy also periodically collected the Panelist's general location, at the region, state, country, or dma/metro code level. (BT0001560 at 579.) As shown in the illustration below, this information is collected from the Panelist's IP address:



(*Id.*)

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[37] UpVoice Legacy also collected the following advertising information: advertisements the user has seen and interactions the user has (if any) with advertisements the user sees. (*Id.* at 570–578.)

[38] Through UpVoice Legacy, BrandTotal collected information from two types of advertisements: (1) sponsored posts, which an advertiser pays Facebook to show to Facebook users, some of which are Panelists, the advertiser has targeted (e.g., based on their advertising interests and/or demographic information); and (2) non-sponsored posts, which the Panelist views without the author of the post having paid Facebook to show to the Panelist. (*Id.* at 570–571.)

[39] For sponsored posts, UpVoice Legacy collected¹ the time the advertisement was shown to the Panelist (what BrandTotal calls the “event time”), the Panelist’s hashed ID, the advertiser post ID, and the hashed post ID. (*Id.* at 570.) For **non-sponsored** posts, UpVoice Legacy collected the same information *other than* the post ID, which is not available for non-sponsored posts. (*Id.*)

[40] Posts may be both sponsored and non-sponsored. For example, assume Ford creates a post touting its new Ford Bronco and adds the “Post” to its “Page”:

¹ As noted below, UpVoice 2021 still collects information on sponsored posts. I discuss the specific information and fields UpVoice 2021 collects below. Where there is a conflict between my discussion in this section and my discussion of UpVoice 2021 below, it should be understood that my discussion of UpVoice 2021 controls. For example, UpVoice 2021 collects the event_time field from the browser, not Facebook. (Appendix H.)

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(Screenshot provided by counsel.)

[41] At this time, the post is “organic” and/or “non-sponsored.” Because the post does not appear in a Panelist’s newsfeed, BrandTotal does not collect any data regarding the post. Ford may also pay Facebook to show the post to individuals Ford wants to see the post (e.g., men, age 21 and older, living in a certain geographic region). When shown to those users, the post is now a “sponsored post.”

[42] Alternatively, the advertiser may choose NOT to post on its page, and instead only pay Facebook to show the post to members of the target audience the advertiser wants to reach. This is also a sponsored-post and, because it is not shown on the advertiser’s public page, is what BrandTotal calls a “dark ad.” I understand BrandTotal estimates 80-90% of the posts on Facebook are “dark.” (Dor Decl., ¶ 9.)

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[43] Now assume the sponsored post is shown not to the Panelist, but to the Panelist's friend, who "likes" the post and comments "Bronco will be outselling Jeep in a few years." Facebook's algorithm, perhaps believing the Panelist would find their friend's interaction with the post interesting, places the post in the Panelist's newsfeed. The advertiser (in this case, Ford) has not paid for the second user (the Panelist) to be shown the post. The post is therefore again a non-sponsored post with respect to the Panelist.

[44] This time, because the user seeing the post is a Panelist, information about the advertisement is sent to BrandTotal. (*Id.* at 571.) In no event is information about the user's friend sent to BrandTotal; the advertisement information is merely sent to BrandTotal as if the Panelist had been the original viewer of the advertisement. (Conversation with Amir Leshman.) When the Panelist reports a non-sponsored post, UpVoice Legacy collected the time the Post was seen, the Panelist's hashed ID, and the hashed post ID:

4. Facebook Non-Sponsored Posts (Cont.)

Example:

Event Time	User hashed id	Sponsored post id	Hashed post id	Type
24/01/2020 16:35:51	b405f0714da74d1c4 cb2c3bad47147a554 c48357		863eb2480ebb6caae ff5f666ebaefbc13859 7d23f	Non-Sponsored



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(BT0001560 at 573.)²

[45] Over time, additional Panelists may see and report the same Post, which BrandTotal registered as separate events:

4. Facebook Non-Sponsored Posts (Cont.)				
Example:				
Event Time	User hashed id	Sponsored post id	Hashed post id	Type
24/01/2020 16:35:51	b405f0714da74d1c4 cb2c3bad47147a554 c48357		863eb2480ebb6caae ff5f666ebaefbc13859 7d23f	Non-Sponsored
2020-01-26 07:08:36	82d1d620b2260f770 0d1eec38889eec59b 6ffa73		863eb2480ebb6caae ff5f666ebaefbc13859 7d23f	Non-Sponsored

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(*Id.* at 574.)

[46] Now assume Ford decides to expand its target audience (e.g., a wider age range, more geographic locations, etc.) and the Panelist is part of the user group to which Facebook is paid to show the post. When the Panelist sees the advertisement in its newsfeed, the post is now a sponsored post. UpVoice Legacy again recorded an event, but this time also collected the sponsored post ID:

² To be clear, these slides from BrandTotal are unconnected from the example Ford advertisement.

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4. Facebook Non-Sponsored Posts (Cont.)

Example:

Event Time	User hashed id	Sponsored post id	Hashed post id	Type
24/01/2020 16:35:51	b405f0714da74d1c4 cb2c3bad47147a554 c48357		863eb2480ebb6caae ff5f666ebafbc13859 7d23f	Non-Sponsored
2020-01-26 07:08:36	82d1d620b2260f770 0d1eec38889eec59b 6ffa73		863eb2480ebb6caae ff5f666ebafbc13859 7d23f	Non-Sponsored
2020-01-26 16:27:53	99791c474e672aee7 876f0d7cbb35cd578 94c2a9	17716987763421 43	863eb2480ebb6caae ff5f666ebafbc13859 7d23f	Sponsored



(*Id.* at 575.)

[47] Only then was BrandTotal able to realize all the events were for the same post. (*Id.* at 576.) BrandTotal then used all this information to provide analytics regarding the paid reach versus non-paid (organic) reach of the Post. (*Id.*)

[48] In no event did UpVoice Legacy and/or BrandTotal collect the following information from any Facebook user: (1) User name (or password); (2) User ID; (3) Web History; (4) Purchases Online; (5) Account Name; (6) Profile Picture; (7) Facebook friends; (8) Installed Apps; or (9) Interactions with non-sponsored content. (*Id.*, at 584.)

4.1.1.2 UpVoice 2021

[49] I understand that sometime in February 2021, BrandTotal began design and development of UpVoice 2021. As of February 18, 2021, UpVoice 2021 was in this “design and development” stage. I understand it took BrandTotal approximately one week to code and test UpVoice 2021. Dor Dep. Tr., 29:6–14, March 10, 2021 (rough)

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[50] UpVoice 2021 did not exist as of the date I wrote my February 18 report. My statements regarding a “revised UpVoice,” were based on the design for a revised version of UpVoice, which subsequently became UpVoice 2021. As of that date, I understand the plan for UpVoice 2021 was for it to collect only the creative ID of the advertisement (i.e., the advertisement ID), the advertiser name, and the Facebook page identification of the advertiser from Panelist. Using this information, BrandTotal would then access the URL of advertisement to collect the remaining information needed to provide its services.

[51] I further understand, sometime after February 19, 2021, BrandTotal determined this method would require, for each and every sponsored post a Panelist reported, making an additional request to Facebook servers for the advertising information when that information was already visible to UpVoice. BrandTotal thus designed UpVoice to collect the advertising information it needs directly from the Panelist. (Dor Dep. Tr., 40:22–42:21, March 10, 2021 (rough).)

[52] UpVoice 2021 differs from UpVoice Legacy in several critical ways. Importantly, UpVoice 2021 does not collect non-sponsored posts. It does not collect information regarding how a Panelist interacts with an advertisement. (Dor Dep. Tr., 107:9–12, March 10, 2021 (rough).) It does not collect demographic information about a Panelist. It does not make active calls or requests to Facebook servers, but instead passively collects data from the Panelists’ HTML feed as the Panelist browses Facebook. (See Dor Dep. Tr., 40:22–41:18, 42:11–21, 63:6–25, March 10, 2021.)

[53] A document detailing the information UpVoice 2021 collects from the Panelist is attached as Appendix H to this declaration. This is the only information captured by viewing a Facebook post UpVoice 2021 sends to BrandTotal’s Servers. (Dor Dep., 69:12–16, March 10, 2021.) BrandTotal loads all this information into its databases *other than* the “fb_post_is_sponsored,” “parser_version,” and “parser_type.” *Id.* at 67:7–21

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[54] The majority of this information is the same advertising information (with perhaps some updated names for clarity) UpVoice Legacy collected, and which I discuss in Section 5. Only the meta_user_hashed_id field is different. (Dor Dep. Tr., 69:17–70:9, March 10, 2021.) UpVoice Legacy collected a field called FB_user hash_ID, which would hash the Facebook user ID with a random salt. (*Id.*) In contrast, UpVoice 2021 uses an internal ID (instead of the Facebook ID), which is then hashed with a random salt. (*Id.*) In addition, although UpVoice Legacy collected “user interests,” UpVoice 2021 does not. (*Id.* at 92:19–93:8.)

[55] When UpVoice 2021 reports a sponsored post event, UpVoice 2021 also sends a token (which is NOT collected from Facebook) that includes the meta_user_hashed_id and and the Panelist’s demographic information. (Dor Dep. Tr., 64:25–66:7, March 10, 2021 (rough).)

[56] Once a Panelist has reported the sponsored post ID of a Post, BrandTotal may periodically sample the publicly available version of the advertisement to collect snapshots of the number of reactions, shares, video views, and anonymized comments the advertisement receives. (BT0001560 at 585; Dor Dep. Tr. 52:4–24, March 10, 2021 (rough).) I understand BrandTotal does this only for those “brands of interest,” which are “brands that are part of a competitive set brand that one of our customers that has a competitive set is interested in monitoring.” (Dor Dep. Tr., 54:25–55:6, March 10, 2021 (rough).) This process is performed by the BrandTotal back end; not UpVoice. *Id.* Besides these snapshots, BrandTotal’s back end does not make any other requests to Facebook servers. *Id.* at 53:20–24. When BrandTotal collects the snapshots, it updates the number of likes, video views, shares, and comments. *Id.* at 56:7–13.

[57] BrandTotal does this by accessing the advertisement’s Uniform Resource Locator (“URL”), which is available for most advertisements to anyone with a web browser and does not require a Facebook account to access. (Clark Decl., ¶ 5(e), ECF 41; *see also* Karve Dep. Tr., 105:19–106:6; 2020-10-26 Hr’g

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Tr., 6:15–7:1 [REDACTED]

[REDACTED]

[58] BrandTotal accesses the URL using only information the Panelist has shared. The Panelist shares the advertiser name, page name, and creative ID for the ad via UpVoice. Using only that information, BrandTotal can then determine the URL using the following formula: [https://www.facebook.com/\[advertisername\]/posts/\[creativeid\]](https://www.facebook.com/[advertisername]/posts/[creativeid]). Alternatively, BrandTotal can use the formula: [facebook.com/\[creativeid\]](facebook.com/[creativeid]), which then redirects to the formula [https://www.facebook.com/\[advertisername\]/posts/\[creativeid\]](https://www.facebook.com/[advertisername]/posts/[creativeid]). For example, if a Panelist reports an advertisement by the company Oura Ring with a creative ID 3792089577554053, the URL would be <https://www.facebook.com/ouraring/posts/3792089577554053>. Entering that URL into a browser allows BrandTotal to then collect additional information about the advertisement, such as the number of total impressions. Once the information is collected by the UpVoice extension, the information is then transmitted to BrandTotal via secure HTTP, which is the industry standard. (Conversation with Amir Leshman.)

[59] BrandTotal periodically collects “the number of likes, the video views, the number of shares, the number of comments, and the different comments on top of the post itself” from the URL. (Dor Dep. Tr., 56:7–13, March 10, 2021.)

[60] The names or other personal information of individuals that have commented on, or otherwise interacted with, a post are not collected:

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(BT0001560 at 1585 (identifying items collected in green boxes).)

[61] [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

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[REDACTED]

[REDACTED]

[REDACTED]

4.2 Relationship Between UpVoice and Other Unimania Applications

[62] I understand Unimania has previously developed and released other applications or extensions—including Social One, Phoenix, “Who is Following Me”, AdsFeed, Anonymous Story Viewer, Story Savebox and Social Video Downloader—that automatically collect the same types of information that UpVoice collects. (Dor. Dep. Tr., 66:13–67:7, 123:13–124:6.) I further understand these applications substantively differed only in the “reward” offered to users of the application (i.e., ordinary Facebook users). Whereas UpVoice offers users of the extension (Panelists) monetary rewards in the form of gift cards in exchange for sharing their data with BrandTotal, these other applications offered users “value add” benefits, such as the ability to browse Facebook in a different manner (Phoenix) or to access Facebook along with other social media programs Instagram and Twitter in their mobile-friendly web interfaces while retaining the look and feel of the original apps. (Dor Dep. Tr., 124:2–6, Jan. 11, 2021; Conversation with Amir Leshman.)

[63] [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

³ (See Dor Dep. Tr., 77:1–9 (Social One), 79:1–14 (Phoenix), Jan. 11, 2021.) The Phoenix application has approximately 500,000 downloads. (*Id.* at 79:15–20.)

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[64] I understand that the technical operation of UpVoice Legacy (i.e., the data it collects from Facebook and the manner in which it does so), which I discuss in Section 5.1 below, is substantially the same as the technical operation of the Value Add applications, such as Phoenix and Social One. The operation of UpVoice 2021 is also similar, with the notable exception that the Value Add applications collect demographic data from the social media/application user, while UpVoice 2021 extension does not, instead relying on the information the Panelist provides through the verification questionnaire. (Dor Dep. Tr., X, March 10, 2021.) Indeed, the only information UpVoice 2021 collects from Facebook servers is advertising information. (*See id.* at X; *see also* Appendix H.)

[65] I understand AdGuard, a company that offers for sale advertising blocking and privacy protection software, published a blog post criticizing applications and extensions developed by Unamania. (ECF No. 42-1, available at <https://adguard.com/en/blog/unimania-spyware-campaign/>, last accessed March 11, 2021.) In the article, the blogger criticized Unimania for transmitting the Facebook user's ID using a static salt. (*Id.* at 3.) I understand Facebook was aware of the *AdGuard* blog post since April 2018. (Facebook Resp. to Interrogatory No. 1, dated Dec. 23, 2020; *see also* FB_BRTL_00014655 at 657.)

[66] I further understand that, in response to the AdGuard Report, BrandTotal stopped using the static salt and instead began using a random method. (Dor Dep. Tr., 148:10–13, Jan. 11, 2021.) The use of a random salt represents a significant security improvement over the use of a static salt. Indeed, I note Mr. Karve testified [REDACTED]

[REDACTED]. (Karve Dep. Tr., 98:10–99:18.) As detailed in Section 5.1.2 below, I have reviewed the UpVoice extension code, and it is my opinion that no security risk exists.

4.3 History Between Facebook and BrandTotal

[67] Although I understand BrandTotal began collecting data from Facebook in order to provide the advertising analytics services to its customers in 2016, Facebook claims it did not become aware of

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BrandTotal until March 2020. (Facebook Supp. Resp. to Interrogatory No. 2, dated January 6, 2021.) I further understand BrandTotal disputes this fact and contends Facebook was aware of BrandTotal and Unimania no later than [REDACTED]

[REDACTED]. When Facebook first learned of BrandTotal and/or Unamania is largely irrelevant to my opinions, other than to note that because UpVoice operates to collect the same data for the same purpose in the same manner as the applications Social One and Phoenix, Facebook's review of UpVoice beginning in April 2020 should have taken even less time because [REDACTED]

[REDACTED] this fact does not meaningfully affect my opinion. (Karve Dep. Tr., 85:20–86:3.)

[68] From approximately April to September 2020, Facebook investigated two BrandTotal extensions: (1) UpVoice; and (2) Ads Feed. (Facebook Supp. Resp. to Interrogatory No. 2, dated January 6, 2021.) Facebook concluded UpVoice collected the following information when a user, who had knowingly installed the UpVoice browser extension, visited the Facebook website:

- (1) user profile information (i.e., Facebook user IDs, gender, date of birth, self-described location, and relationship status);
- (2) advertising interests (e.g., the Panelist is interested in “home improvement” Facebook creates based on its own monitoring of the user’s browsing behavior and which is made available to the Panelist);
- (3) advertising information (e.g., the advertisement’s text, image, etc.), including the creative ID of the advertisement, which allowed the advertisement to be accessed outside the Facebook website (i.e., by typing in the URL into a simple web browser without needing to be a Facebook user); and
- (4) advertising metrics (e.g., the number of comments on, reactions to, and shares of the advertisement). (*Id.*; see also Karve Decl., ¶ 17.)

[69] On September 21, 2020—approximately five months after Facebook began its investigation into UpVoice—Facebook initially requested Google remove the UpVoice extension from the Google Chrome

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Store. (FB_BRTL_00016958 at 958–959.) After a follow-up communication four days later, Google did so. (*Id.* at 958.)

5. DISCUSSION & ANALYSIS

5.1 My Independent Review of the UpVoice Extension Code Confirms the Extension Code Collects Only the Information Panelists Agree to Provide to UpVoice, Only From Those Individuals, and Does So in a Way That Protects the Privacy of Those Users.

[70] I understand in its denying BrandTotal’s motion for a temporary restraining order, the Court stated:

This case differs in that some of the information at issue is not “public,” but BrandTotal is likely correct that the advertisements themselves are essentially public, *see Compl. ¶¶ 17–19* (Facebook’s allegations discussing its public library of all ads on its services), that the users who consent to use BrandTotal’s browser extension have the most significant interest in the data in their own profiles, and that Facebook has not articulated a significant privacy or intellectual property interest in any data outside of those categories, such as the “advertising interests” that Facebook generates for (and shares with) its users, and the metrics of engagement (likes, comments, etc.) on particular advertisements. So long as BrandTotal’s browser extension works as intended and represented, it threatens interests at most only marginally greater than those the Ninth Circuit found “relatively weak” in *hiQ*. *See* 938 F.3d at 998.

(Order Regarding Motion for Temporary Restraining Order, 22–23, ECF No. 58.)

[71] I have been asked to review the UpVoice code and determine whether UpVoice Legacy and UpVoice 2021: (1) collects any information more than disclosed (2) collects that information only from users that have consented to have their information collected; and (3) reports such information in a manner that protects the users’ privacy and does not disclose any identified information.

[72] As discussed in the paragraphs below, it is my opinion that both UpVoice Legacy and UpVoice 2021 do not collect any information beyond the information Panelists agree to provide. It is my opinion UpVoice 2021 not only collects that information *only* from users that have consented to share that specific information with BrandTotal (in exchange for financial reward), but that BrandTotal has now taken

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additional steps to insure users that have not consented are unable to share information by imposing technical safeguards, which I discuss below.

[73] It is also my opinion UpVoice 2021 collects **only** advertising information from Facebook servers and does not collect **any** user information, instead relying on the demographic information Panelists provided as part of their application to become Panelists.

[74] Finally, I have also concluded that UpVoice Legacy reported the collected information in a way that protects the users' privacy (e.g., by using random salts), and reports **only** deidentified information. UpVoice 2021 does not collect any user information from Facebook.

5.1.1 UpVoice collects only that information Panelists agree to provide to UpVoice.

[75] To validate what I learned from the BrandTotal documents and other material, I also reviewed the source code for UpVoice Legacy and UpVoice 2021.

5.1.1.1 UpVoice Legacy

[76] I reviewed the following versions of the UpVoice Legacy code, each of which I have determined is available on the website crxcavator.io, [REDACTED]

[REDACTED]

[REDACTED]. (*Id.* at 113:15–114:20.)

I agree.

[77] In the paragraphs below, I discuss, and provide snippets from, version 2.10.1444 of the Chrome UpVoice extension, which is the version available as of September 30, 2020. Regardless, all versions of UpVoice from March to September 2020 were functionally identical.

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[78] The UpVoice Legacy code collected demographic data from Paenlists, as described above in section 4.1.1.1:

```

packages > btinternal > services > src > EventsEnricher.ts > EventsEnricher > getFacebookDataOrNulls
508     }
509
510     getRegularStoryHashes<T extends IRegularStoryData>(story: T, FT_ENT_ID_HASH_SALT: string) {
511         return {
512             fb_post_hashed_entity_id: Shai.salted_hash(story.fb_post_entity_id, FT_ENT_ID_HASH_SALT),
513             fb_post_hashed_content: Shai.hash(story.fb_post_text || ""),
514             fb_user_hashed_id: Shai.salted_hash(story.fb_user_id, this.secret_local_salt),
515         };
516     }
517
518     interactionHash(i: { fb_post_entity_id: string; fb_user_id: string }, FT_ENT_ID_HASH_SALT: string) {
519         return {
520             fb_post_hashed_entity_id: Shai.salted_hash(i.fb_post_entity_id, FT_ENT_ID_HASH_SALT),
521             fb_user_hashed_id: this.getUserHashes(i.fb_user_id).fb_user_hashed_id,
522         };
523     }
524
525     /**
526      * pic spesific fields and shape the fields names for the event to be send to the server
527     */
528     static userMetadata(metadata: IUserMetadata): IFacebookFields {
529         return {
530             fb_meta_gender: metadata.gender,
531             fb_meta_dob_month: metadata.birthday.month,
532             fb_meta_dob_year: metadata.birthday.year,
533             fb_meta_relationship_status: metadata.relationshipStatus,
534             fb_meta_user_locale: metadata.locale,
535             fb_meta_current_state_or_country: metadata.stateOrCountry,
536         };
537     }
538
539     static geoData(geo: IGeoInfo) {
540         const {
541             countryIso2: geo_current_location_country_iso,
542             state: geo_current_location_state,
543             country: geo_current_location_country,
544             region: geo_current_location_region,
545             metro_code: geo_current_location_metro_code,
546         } = geo;
547
548         return {
549             geo_current_location_country,
550             geo_current_location_country_iso,
551             geo_current_location_state,
552             geo_current_location_region,
553             geo_current_location_metro_code,
554         };
555     }

```

(See packages/btinternal/services/src/EventsEnricher.ts,, at ll. 525 – 555.)

[79] The extension code extracts each post payload from the Panelist's news feed event and wraps the payload with contextual data associated with the event. The payload is then uploaded to cloud storage maintained by BrandTotal. In the screenshot below, line 270 shows the contextual data merged with the payload, identified as the story variable on line 262, which contains advertiser information extracted from the payload

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```

TS parser.ts      TS base-content.ts      TS FacebookContentScriptMainBase.ts      TS EventsEnricher.ts      TS Interfaces.ts
paid_panel > packages > btinternal > services > src > TS EventsEnricher.ts > enrichRegularStory
262   public async enrichRegularStory(story: IRegularStoryData): Promise<IEnrichedFBRegularStory> {
263     // add the event time before any possible long async stuff
264     const event_time = new Date();
265     const [metadata, location] = await Promise.all([
266       this.getFacebookMetadataForUserOrNulls(story.fb_user_id),
267       this.locationService.getLocation(),
268     ]);
269
270     return {
271       event_time,
272       browser_time_zone: (event_time.getTimezoneOffset() / 60) * -1,
273       ...EventsEnricher.facebookMetadata(metadata),
274       ...EventsEnricher.geoData(location),
275       ...this.getRegularStoryHashes(story, FT_ENT_ID_HASH_SALT),
276       ...EventsEnricher.googleData(),
277       third_party_id: this.thirdPartyId,
278       third_party_cookie: this.thirdPartyCookie,
279       device_id: this.deviceId,
280       user_agent: this.userAgent,
281       extension_id: this.extensionId,
282       // TODO: change back to this.extensionVersion once we get rid of old facebook code
283       extension_version: story.parser_version,
284       fb_post_is_sponsored: false,
285       parser_version: story.parser_version,
286     };
287   }

```

(packages/btinternal/services/src/EventsEnricher.ts, at l. 270.)

[80] At lines 419 through 441 below, function **onRegularPost**, and function **onSponsoredPost** (lines 443–466), sends the collected payload to UpVoice maintained cloud storage on line 435 and 452:

```

TS parser.ts      TS base-content.ts      TS FacebookContentScriptMainBase.ts      TS EventsEnricher.ts      TS BackgroundMainBase.ts
paid_panel > packages > btinternal > web-base > src > TS BackgroundMainBase.ts > BackgroundMainBase
418
419   protected onRegularPost(post: IRegularStoryData) {
420     from(this.eventsEnricher.enrichRegularStory(post))
421       .pipe(isEventRelevant())
422       .subscribe(
423         story => {
424           this.log.info("sending regular story", story.fb_post_hashed_entity_id);
425
426           // this.analyticsProvider.then((lga) => {
427           //   lga('send', {
428           //     hitType: 'event',
429           //     eventCategory: 'New regular post',
430           //     eventAction: '__placeholder__',
431           //     eventLabel: ''
432           //   });
433           // });
434
435           this.sendPostToAws(story, "facebook_post");
436         },
437         error => {
438           this.log.error(error);
439         },
440       );
441   }

```

(packages/btinternal/web-base/src/BackgroundMainBase.ts, at ll. 419–441.)

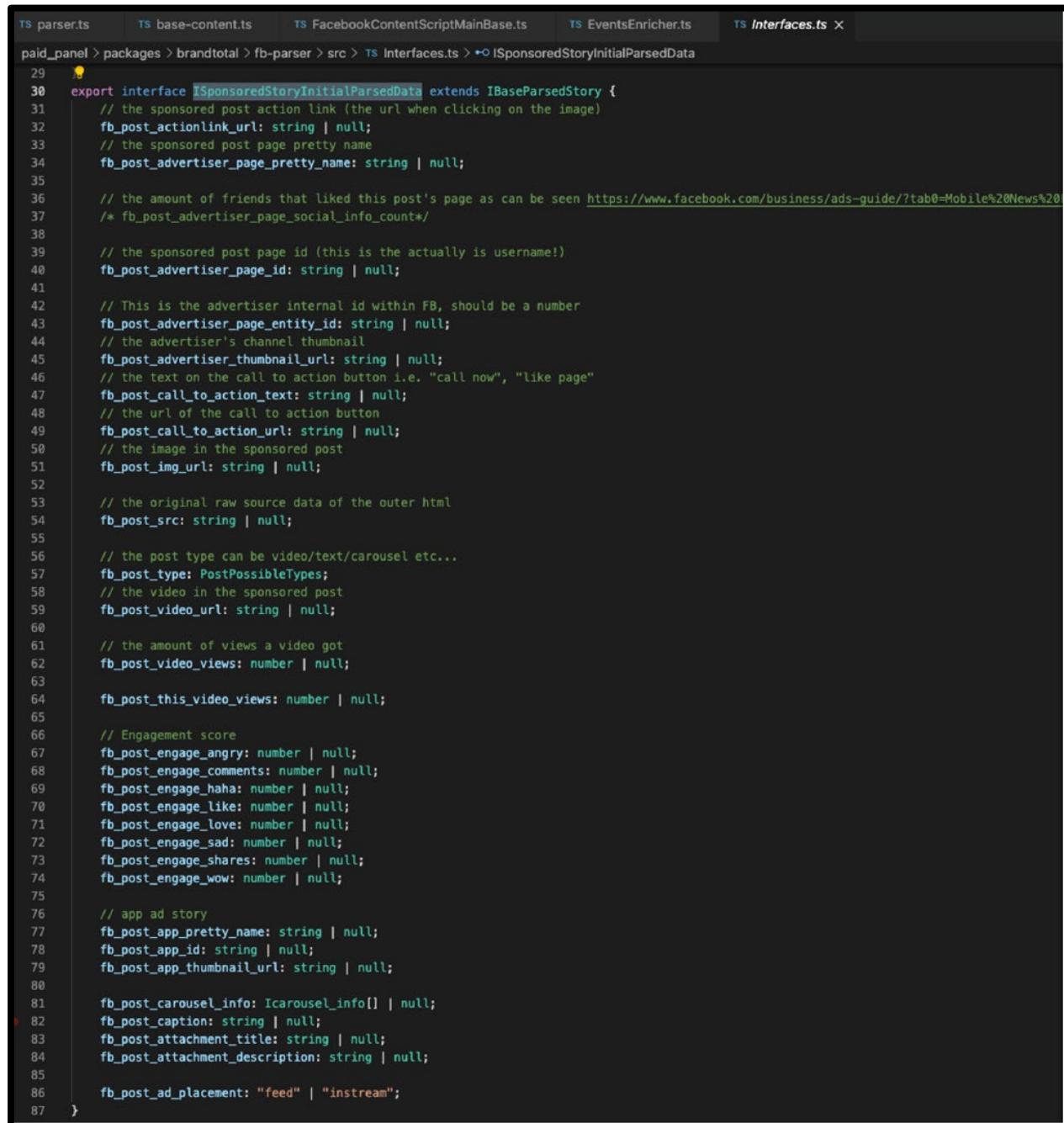
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```
paid_panel > packages > btinternal > web-base > src > TS BackgroundMainBase.ts > BackgroundMainBase
443     protected onSponsoredPost(post: ISponsoredStoryData) {
444         this.pixelsService.fireAttributionOnSponsoredEventIfneeded(this.storage.thirdPartyIdIS);
445
446         from(this.eventsEnricher.enrichSponsoredStory(post))
447             .pipe(isEventRelevant())
448             .subscribe(
449                 story => {
450                     this.log.info("sending SponsoredStory", story.fb_post_hashed_entity_id);
451
452                     this.sendPostToAws(
453                         story,
454                         {
455                             desktop: "facebook_post",
456                             "desktop-v2": "facebook_post",
457                             mobile: "facebook_mobile_post",
458                             partial: "facebook_partial_post",
459                         } as const)[post.parser_type],
460                     );
461                 },
462                 error => {
463                     this.log.error(error);
464                 },
465             );
466         );
}
```

(*Id.* at ll. 435–452.)

[81] At lines 30 through 87, below, a summary of the attributes collected from the Panelist browser event payload (if available) is provided:

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```
paid_panel > packages > brandtotal > fb-parser > src > TS Interfaces.ts > • ISponsoredStoryInitialParsedData
29
30 export interface ISponsoredStoryInitialParsedData extends IBaseParsedStory {
31     // the sponsored post action link (the url when clicking on the image)
32     fb_post_actionlink_url: string | null;
33     // the sponsored post page pretty name
34     fb_post_advertiser_page_pretty_name: string | null;
35
36     // the amount of friends that liked this post's page as can be seen https://www.facebook.com/business/ads-guide/?tab0=Mobile%20News%20
37     /* fb_post_advertiser_page_social_info_count*/
38
39     // the sponsored post page id (this is the actually is username!)
40     fb_post_advertiser_page_id: string | null;
41
42     // This is the advertiser internal id within FB, should be a number
43     fb_post_advertiser_page_entity_id: string | null;
44     // the advertiser's channel thumbnail
45     fb_post_advertiser_thumbnail_url: string | null;
46     // the text on the call to action button i.e. "call now", "like page"
47     fb_post_call_to_action_text: string | null;
48     // the url of the call to action button
49     fb_post_call_to_action_url: string | null;
50     // the image in the sponsored post
51     fb_post_img_url: string | null;
52
53     // the original raw source data of the outer html
54     fb_post_src: string | null;
55
56     // the post type can be video/text/carousel etc...
57     fb_post_type: PostPossibleTypes;
58     // the video in the sponsored post
59     fb_post_video_url: string | null;
60
61     // the amount of views a video got
62     fb_post_video_views: number | null;
63
64     fb_post_this_video_views: number | null;
65
66     // Engagement score
67     fb_post_engage_angry: number | null;
68     fb_post_engage_comments: number | null;
69     fb_post_engage_haha: number | null;
70     fb_post_engage_like: number | null;
71     fb_post_engage_love: number | null;
72     fb_post_engage_sad: number | null;
73     fb_post_engage_shares: number | null;
74     fb_post_engage_wow: number | null;
75
76     // app ad story
77     fb_post_app_pretty_name: string | null;
78     fb_post_app_id: string | null;
79     fb_post_app_thumbnail_url: string | null;
80
81     fb_post_carousel_info: Icarousel_info[] | null;
82     fb_post_caption: string | null;
83     fb_post_attachment_title: string | null;
84     fb_post_attachment_description: string | null;
85
86     fb_post_ad_placement: "feed" | "instream";
87 }
```

(packages/brandtotal/fb-parser/src/interfaces.ts, at ll. 30–87.)

[82] In addition to collecting advertisement data from the Panelist's newsfeed, the UpVoice extension collects a summary of ads visited by the Panelist. In the screenshot below, the **start** function is responsive for initializing methods that track the Panelist's interaction with Facebook advertisements:

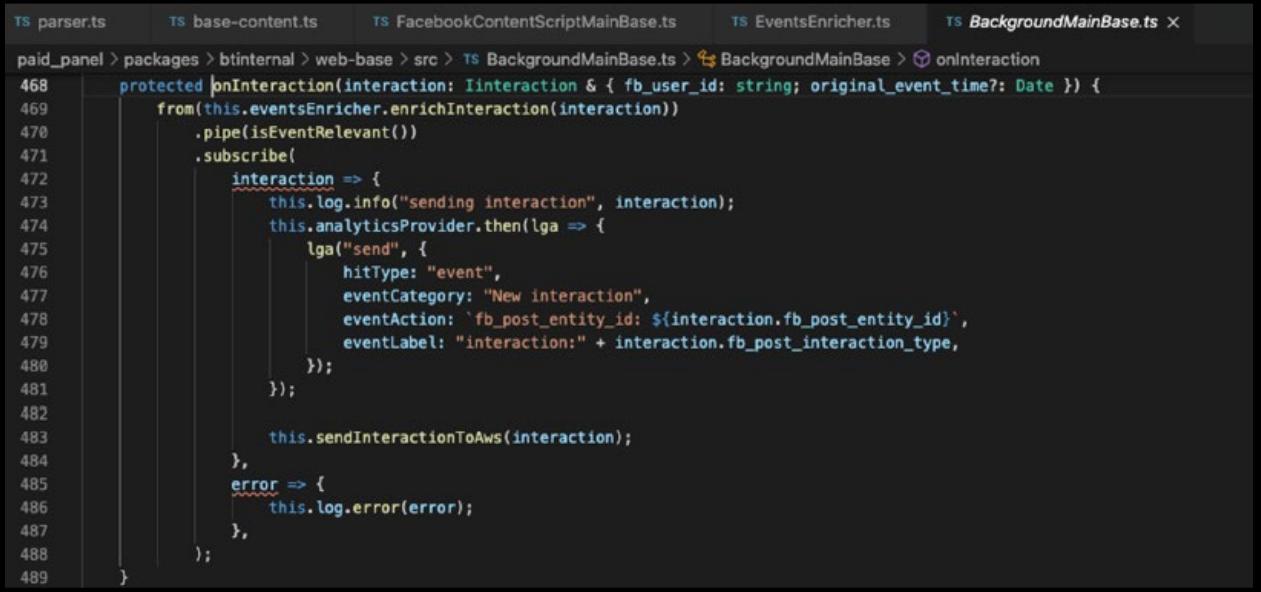
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```
TS parser.ts      TS base-content.ts      TS FacebookContentScriptMainBase.ts      TS EventsEnricher.ts      TS BackgroundMainBase.ts ×
paid_panel > packages > btinternal > web-base > src > TS BackgroundMainBase.ts > BackgroundMainBase > start > adActivityTracker.adActivitySubscription.subscribe
92  public start() {
93    this.crossMessageSubscription = this.environmentServices.crossMessage.subscribe(message => this.onCrossMessage(message));
94    this.auditEventsSubscription = this.environmentServices.auditEvents.subscribe(m => this.onAuditEvent(m));
95
96    if (this.FB_SPONSORED_FAILSAFE_ENABLED) {
97      this.setupSponsoredFailsafeWarning();
98    }
99
100   this.envEventsSubscription = this.environmentServices.envEvents.subscribe(event => this.onEnvEvent(event));
101   this.configRequesterUnsub = this.environmentServices.onConfigRequest(() => ({
102     ShouldShowFoundPosts: this.storage.shouldShowFoundPosts,
103   }));
104   this.interestsSendingTimerStopper = this.initInterestsSending().subscribe();
105
106   this.environmentServices.sendMessageToContent({
107     type: "background-ready",
108     payload: {},
109   });
110   this.ytVideoEvents = this.ytTracker
111     ? this.ytTracker.sponsoredYTVideosSubscription
112       .pipe(distinctUntilChanged((x, y) => x.id == y.id))
113       .subscribe(video => this.onYTAd(video))
114       : null;
115
116   if (this.adActivityTracker) {
117     this.adActivityEventsSub = this.adActivityTracker.adActivitySubscription.subscribe(async story => {
118       const lastAdActivityDate = this.storage.GetLastAdActivityTime(story.userId);
119       if (lastAdActivityDate < story.dateClicked) {
120         this.storage.SetLastAdActivityTime(story.userId, story.dateClicked);
121         this.onInteraction({
122           fb_post_interaction_type: "ad_activity",
123           fb_post_entity_id: story.entityId,
124           fb_post_interaction_url: story.landingPageURL,
125           fb_post_interaction_text: story.bodyRawText,
126           fb_post_interaction_click_origin: null,
127           fb_post_src: null,
128           fb_user_id: story.userId,
129           original_event_time: story.dateClicked,
130           fb_post_advertiser_page_entity_id: story.fb_post_advertiser_page_entity_id,
131           fb_post_advertiser_page_id: story.fb_post_advertiser_page_id,
132         });
133       }
134     });
135   }
136 }
```

(packages/btinternal/web-base/src/BackgroundMainBase.ts, at ll. 92–136.)

[83] The function **onInteraction** (line 121 above) collects the payload constructed from the *AdActivityTracker* object and uploads the result to UpVoice-maintained cloud storage through the invocation of **sendInteractionToAWs** (line 483 below):

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```
paid_panel > packages > btinternal > web-base > src > BackgroundMainBase.ts > onInteraction
468     protected onInteraction(interaction: IInteraction & { fb_user_id: string; original_event_time?: Date }) {
469         from(this.eventsEnricher.enrichInteraction(interaction))
470             .pipe(isEventRelevant())
471             .subscribe(
472                 interaction => {
473                     this.log.info("sending interaction", interaction);
474                     this.analyticsProvider.then(lga => {
475                         lga("send", {
476                             hitType: "event",
477                             eventCategory: "New interaction",
478                             eventAction: `fb_post_entity_id: ${interaction.fb_post_entity_id}`,
479                             eventLabel: "interaction:" + interaction.fb_post_interaction_type,
480                         });
481                     });
482
483                     this.sendInteractionToAws(interaction);
484                 },
485                 error => {
486                     this.log.error(error);
487                 },
488             );
489     }
}
```

(packages/btinternal/web-base/src/BackgroundMainBase.ts, at ll. 468–489.)

[84] In the screenshot below, as part of the **getPosts** function, lines 205 and 206 identify two URLs the algorithm scans within the Panelists' ad view history to extract relevant information about the advertisement.

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```
TS parser.ts      TS base-content.ts      TS FacebookContentScriptMainBase.ts      TS EventsEnricher.ts      TS AdActivityTracker.ts ×
paid_panel > packages > btinternal > services > src > ts AdActivityTracker.ts > AdActivityTracker > getPosts
187  private async getPosts(dyn: string, user: string, dtsg: string) {
188    const adsActivityPagesIterable = new AdsActivityPagesIterator(this.httpClient, dyn, user, dtsg);
189    const ret: FBAActivity[] = [];
190
191    const formParams = new URLSearchParams();
192    formParams.set("_user", user);
193    formParams.set("_a", "1");
194    formParams.set("fb_dtsg", dtsg);
195    formParams.set("_dyn", dyn);
196
197    let maxPages = 10;
198    for await (const historyRows of adsActivityPagesIterable) {
199      if (maxPages-- === 0 || historyRows === undefined) {
200        break;
201      }
202
203      for (const postCookie in historyRows) {
204        const possibleAdPreviewContentsUrls = [
205          `https://www.facebook.com/click_activity/preview_contents/?ad_id=${postCookie}&image_height=78&image_width=150&dpr=2`,
206          `https://www.facebook.com/ad_activity/ad_preview_contents/?ad_id=${postCookie}&image_height=78&image_width=150&dpr=2`,
207        ];
208
209        let postDataResponse;
210        for (const url of possibleAdPreviewContentsUrls) {
211          try {
212            postDataResponse = await this.httpClient.post(url, formParams.toString());
213            if (postDataResponse !== "") {
214              break;
215            }
216          } catch (e) {}
217        }
218
219        if (!postDataResponse) {
220          throw new Error("No ad_activity/click_activity valid url");
221        }
222
223        const jsonMatch = postDataResponse.match(/for \(\;\;\);(.*)/);
224        if (jsonMatch && jsonMatch[1]) {
225          const adPreviewData = <AdPreview>JSON.parse(jsonMatch[1]);
226          if (adPreviewData.payload) {
227            this.log.debug('new data', adPreviewData.payload);
228            // Example patterns:
229            // /financfreedomsuccess/videos/151395678944281/
230            // /BezeqBenleumi/posts/10155203334889016
231            // /permalink.php?story_fbid=159992293402960&id=755328984528966
232            // /permalink.php?story_fbid=195925654201796&id=165572860570409&substory_index=0
233            // /trosscreative/photos/p.1572568109491214/1572568109491214/?type=3
234            // /UpsyTunes/photos/a.552389354794413.1073741829.552172734816075/1758803517486318/?type=3
235            // /bubblesort.co/posts/1871569029821274:0
236            let entityId: string | null = null;
237            let fb_post_advertiser_page_id: string | null = null;
238            let fb_post_advertiser_page_entity_id: string | null = null;
239            if (adPreviewData.payload.contents) {
240              for (const matcher of knownUrlPatterns) {
241                let match = matcher(adPreviewData.payload.contents.storyURI);
242                if (match) {
243                  if (!entityId && match.has("entityId")) {
244                    entityId = match.get("entityId")!;
245                  }
246                  if (!fb_post_advertiser_page_id && match.has("fb_post_advertiser_page_id")) {
247                    fb_post_advertiser_page_id = match.get("fb_post_advertiser_page_id")!;
248                  }
249                  if (!fb_post_advertiser_page_entity_id && match.has("entityId")) {
250                    fb_post_advertiser_page_entity_id = match.get("fb_post_advertiser_page_entity_id")!;
251                  }
252                }
253              }
254            }
255          }
256        }
257      }
258    }
259  }
```

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```
253
254
255
256
257     if (entityId && adPreviewData.payload.contents) {
258         const cookieDate = historyRows[postCookie].date;
259         const newPostData: FBAdActivity = {
260             ...adPreviewData.payload.contents,
261             dateClicked: new Date(Number.parseInt(cookieDate) * 1000),
262             userId: user,
263             entityId,
264             fb_post_advertiser_page_id,
265             fb_post_advertiser_page_entity_id,
266         };
267         this.log.debug(`Found new entId`, newPostData);
268         ret.push(newPostData);
269     } else {
270         this.log.captureBreadcrumb({
271             message: `storyURI`,
272             data: adPreviewData.payload.contents,
273         });
274         this.log.error(new Error(`Encountered a bad storyURI`));
275         throw new Error(`Encountered a bad storyURI`);
276     }
277 }
278 }
279 }
280
281 return ret.sort((a, b) => {
282     return a.dateClicked > b.dateClicked ? 1 : -1;
283 });
284
285 }
```

(packages/btinternal/services/src/AdActivityTracker.ts, at ll. 187–285.)

[85] Lines 247 and 250, above, collect the advertiser page identification and entity identification, respectively.

[86] Based on my own review of the UpVoice Legacy source code, the above information is the *only* information UpVoice Legacy collected from Facebook.

[87] I understand Mr. Karve submitted a declaration on October 21, 2020. (ECF No. 42.) In this declaration, Mr. Karve identifies the information and data each version of the UpVoice extension he reviewed “scrapes, has scraped, or was coded to scrape.” (*Id.* at ¶ 17.) Specifically, Mr. Karve identifies the following types of information:

- (1) User profile information – the Facebook user ID⁴, gender, date of birth, self-disclosed location, and relationship status;

⁴ Although Mr. Karve claimed UpVoice collects the Facebook user ID, my review of BrandTotal’s materials and the source code for UpVoice confirms BrandTotal collects only the

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- (2) Advertising interests (discussed above);
- (3) Advertisement data –the advertisement creative (i.e., text, images, or videos) and the URL of the advertisement, which allows anyone—Facebook user or not—to access information about the advertisement; and
- (4) Advertising metrics – the number of comments, reactions, and shares associated with the advertisement (available to non-Facebook users who have access to the advertisement’s URL).

(*Id.*)

[88] I agree with Mr. Karve’s analysis. My review of UpVoice Legacy confirmed that UpVoice collects only these categories of information.

[89] Mr. Karve and I also agree [REDACTED]
[REDACTED]. (Karve Dep. Tr. 93:18–95:23.) We also agree UpVoice Legacy [REDACTED] (*Id.*, at 99:19–23.)

[90] Although, based on my own review of the UpVoice Legacy source code, I largely agree with Mr. Karve as to the types of information the UpVoice extension collects, there are nonetheless a few instances where I disagree with statements in Mr. Karve’s declaration. In paragraph 16, Mr. Karve states: “With respect to the collection of Facebook data, each version of the UpVoice extension that I reviewed was functionally identical. Each worked in a similar way and was coded to scrape the same information from Facebook computers.” (ECF 42, ¶ 16.) I disagree. Initially, I note that Mr. Karve’s declaration does not state which versions of the UpVoice extension he reviewed. As Mr. Karve himself recognized at his deposition, [REDACTED]

[REDACTED] Karve Dep. Tr., 98:10–99:18.)

id hashed with a random salt. [REDACTED]
[REDACTED] (Karve Dep. Tr., 98:6–99:18.)

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[REDACTED]

[REDACTED]

[REDACTED] (*Id.* at 107:19–108:14.) With those distinctions made, I agree that all versions of UpVoice Legacy between March and October 2020 were functionally identical.

5.1.1.2 UpVoice 2021

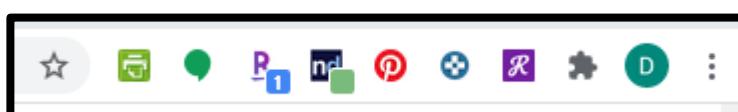
[91] I understand BrandTotal provided Facebook with the source code for UpVoice 2021 to run on extensions (Microsoft Edge and Google Chrome) and desktop application (Microsoft OS). I have reviewed these same productions.

[92] My review confirms UpVoice 2021 does not collect any user information from Facebook.

[93] I also examined UpVoice 2021 to determine whether it could collect data from third-parties (i.e., users that had not agreed and/or qualified to be Panelists). I concluded that it does not. My analysis is confirmed by the testimony of Mr. Dor. (*See* Dor Dep. Tr., 109:9–16, 110:10–18, Jan. 11, 2021.)

[94] Initially, I note that Google Chrome offers profiles, which Google claims are “ideal for: sharing a computer with multiple people”. When I log into a different Chrome profile, the extensions I had added to my profile are no longer available. Google Chrome also offers “guest” mode, which Google claims is “ideal for: Letting others borrow your computer, or borrowing someone else’s computer”; and/or “Using a public computer, like one at a library or café.” (<https://support.google.com/chrome/answer/6130773>, last accessed March 11, 2021.) When I log in via a “guest” profile, no extensions added by the primary profile are available:

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Extensions available through
main profile



No extension available when browsing
“Guest”

[95] Although UpVoice Legacy did not include code to address these issues, UpVoice 2021 does.

```
// Don't send if we failed to get the user's id or if the user opted-out
if (!viewer.ytUserId || !(await this.isUserOptedInForChannel("youtube", viewer.ytUserId))) {
    return;
}
```

(See packages/btinternal/web-base/src/BackgroundMainBase.ts#547 (showing prompt for YouTube account).)

```
private async isUserOptedInForChannel(channel: Channel, userId: string) {
    const service = await this.getOptInRegistrationService();
    const userType = service.getUserType(channel, userId);
    if (userType === null) {
        const popupResponse = await createPopupWindow({ channel });
        service.setUserType(popupResponse.channel, popupResponse.approved ? "allowed" : "blocked", userId);
        return popupResponse.approved;
    }

    if (userType !== "allowed") {
        this.log.info(`Found user id: ${userId}, which hasn't opted-in, not sending data.`);
        return false;
    }

    return userType === "allowed";
}
```

(See packages/btinternal/web-base/src/BackgroundMainBase.ts#702 (showing prompt for YouTube account).)

[96] This opt-in window is the same for YouTube or Twitter as it is for Facebook. Dor Dep. Tr., 45:18–23, March 10, 2021 (rough)

5.1.2 A user could manually provide BrandTotal with each and every piece of information that UpVoice collects automatically.

[97] As noted above, before becoming a Panelist, a potential-user must agree to the UpVoice terms of Service, which discloses the information UpVoice collects. In the chart below, I have identified each piece

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of information UpVoice collects, whether that information is collected by UpVoice Legacy and/or UpVoice 2021, and whether that information is identified as collected in the UpVoice Terms of Service.

Information	Collected by:	Included in UpVoice Terms of Service (ToS)
Facebook user ID (hashed with random salt)	UpVoice Legacy	Section 5.1(iii) of ToS
Facebook user gender	UpVoice Legacy	Section 5.1(iii) of ToS
Facebook user date of birth	UpVoice Legacy	Section 5.1(iii) of ToS (“age”)
Facebook user location	UpVoice Legacy	Section 5.1(iii) of ToS (“where you live”)
Facebook user relationship status	UpVoice Legacy	Section 5.1(iii) of ToS
Facebook user’s advertising interests	UpVoice Legacy	Section 5.1(ii) of ToS (“general interests”)
Advertisement creative	UpVoice Legacy UpVoice 2021	Section 5.1 of ToS*
Advertisement URL	UpVoice Legacy UpVoice 2021	Section 5.1 of ToS*
Advertisement metrics	UpVoice Legacy UpVoice 2021	Section 5.1 of ToS*

*“data about sponsored campaigns, sponsored posts or advertisements that target you directly or that have been shared with you on specific mobile application, social media and/or other websites, as applicable.”

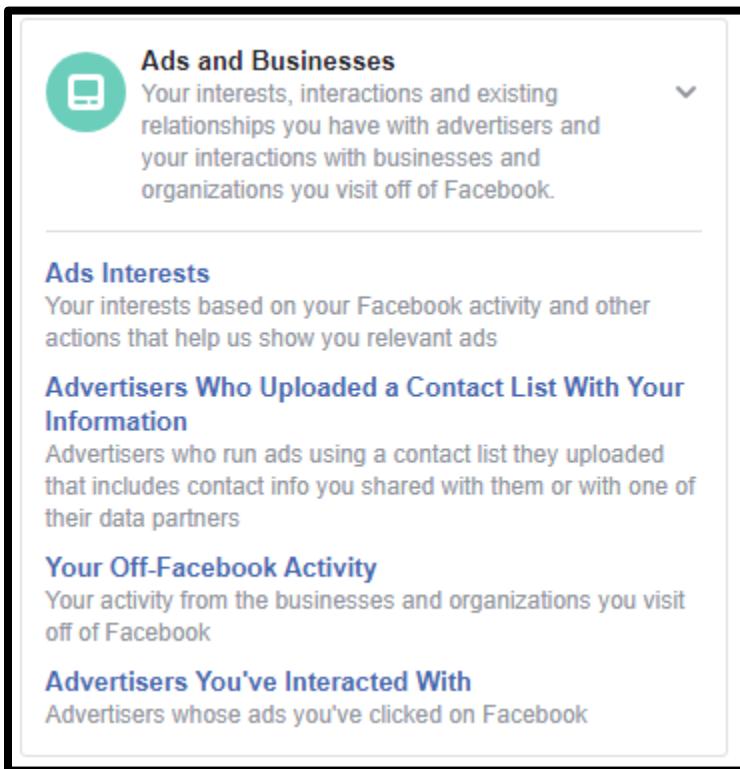
[98] Although UpVoice automatically collects this information, it is nevertheless entirely possible for the user to manually share each and every piece of information with BrandTotal.

[99] I first note that Panelists manually share their demographic information (gender, date of birth, location, and relationship status) with BrandTotal as part of the qualification questionnaire, as I discuss in

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section 4.1. Regardless, the user obviously has access to this information on their profile page and could easily share that information with BrandTotal.

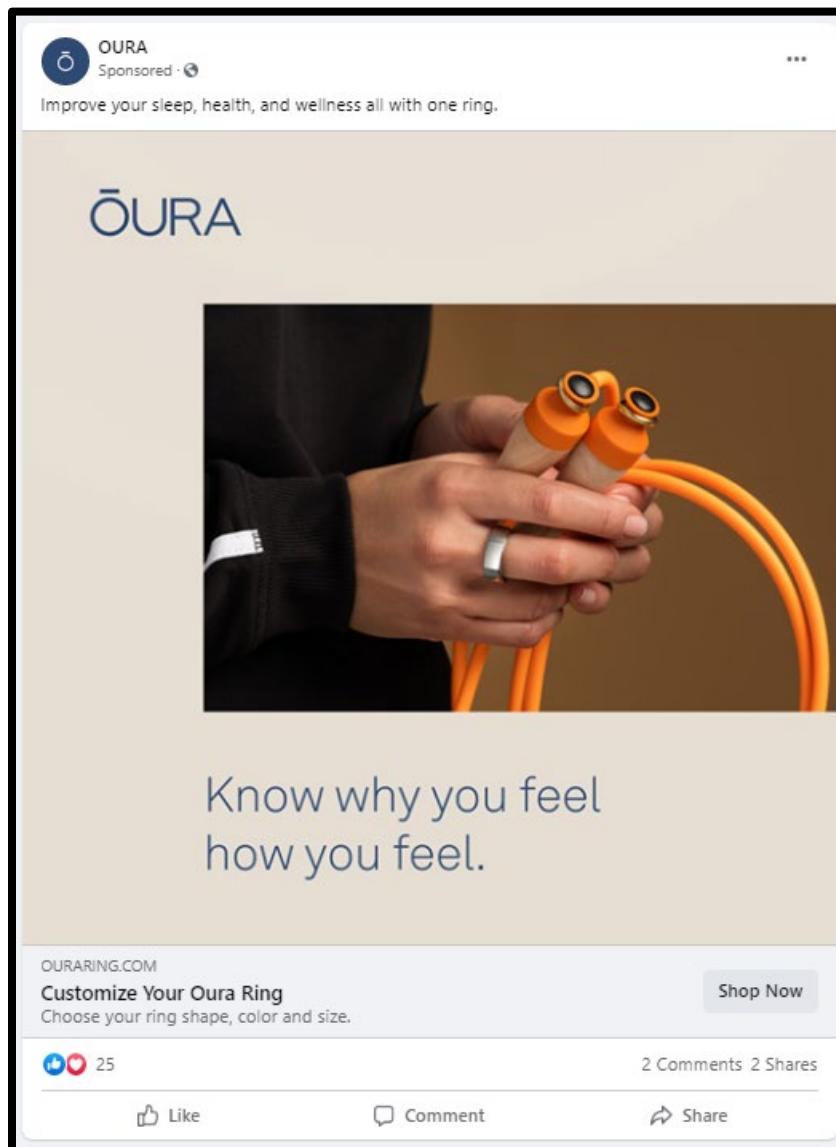
[100] Panelists can also see, and share, their “advertising interests” by going to “facebook.com/your_information” and choosing the “Ads and Businesses” option under the sub-heading “Information About You”:



(https://www.facebook.com/your_information.)

[101] Panelists can also see and manually share information about advertisements shown to them, including the advertising creative, URL, and metrics. For example, the advertisement below was shown in a news feed:

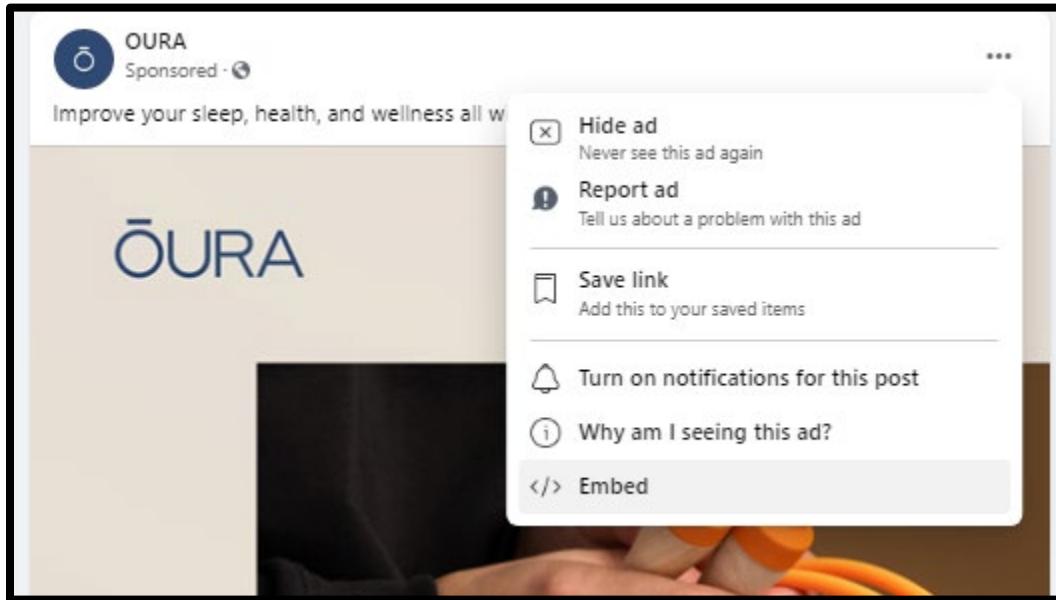
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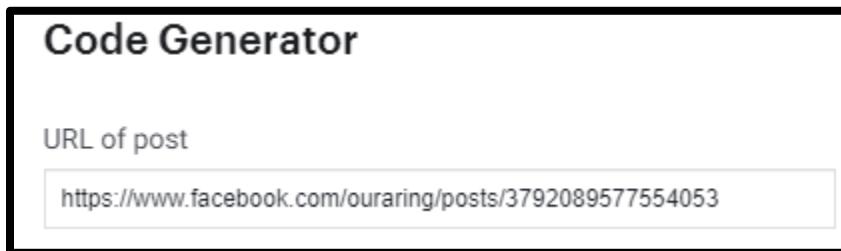
[102] The advertising creative is apparent and can even be shared via the “share” option in the lower-right corner. The number of interactions (25 likes or other interactions, such as “love”), number of comments (2), and number of shares (2) are also shown.

[103] By clicking the three dots in the upper-right corner, I was also able to find the URL (aka “creative ID”) of the advertisement by choosing the “</> Embed” option:

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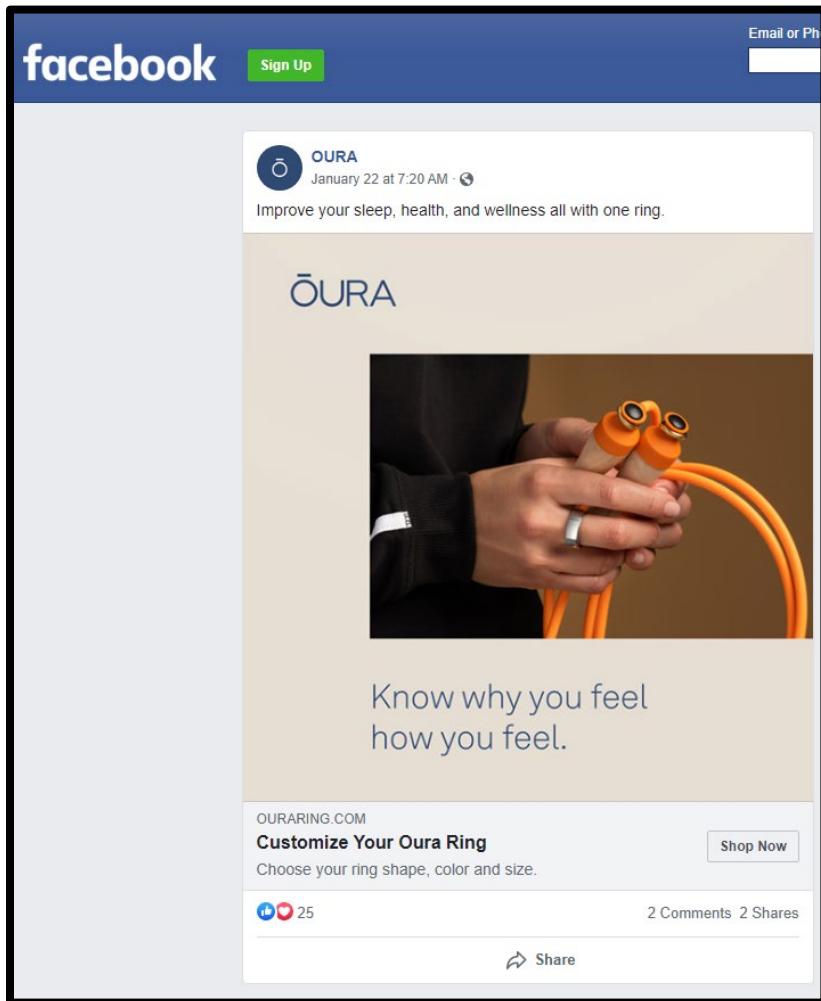
[104] By clicking “</> Embed” I was then able to copy the “URL of post” (<https://www.facebook.com/ouraring/posts/3792089577554053>):



[105] Pasting that link into a browser, again showed me the advertisement and the number of interactions. In addition, I was able to access the same site by appending the creative ID (3792089577554043) after facebook.com (e.g., facebook.com/3792089577554043), which then rerouted me to: <https://www.facebook.com/ouraring/posts/3792089577554053>.

[106] I confirmed I was able to view the advertisement information with the URL even not being a Facebook user by opening a “Guest” profile on Google chrome, visiting Facebook.com to confirm I was not logged in, and then pasting the URL into my browser. Despite not being logged into Facebook, I was able to view the same information about the advertisement, including the creative and interaction metrics:

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[107] In summary, I determined it was possible for a Panelist to manually share each piece of information that the Panelist has agreed to provide to BrandTotal. BrandTotal does not need to access any information to which the Panelist does not have access and/or could not provide to BrandTotal. The only distinction is that the UpVoice extension collects the information automatically.

[108] The International Organization for Standardization defines “data portability” as the “ability to easily transfer data from one system to another without being required to re-enter data.” (Ex. B to BrandTotal’s First Amended Counterclaims, ECF No. 36.) Under this broad definition, UpVoice engages in standard data portability.

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**5.1.3 The UpVoice extension code reports Panelists' information
in a manner that protects the users' privacy.**

[109] As I discuss above, earlier versions of Unimania extensions—not UpVoice Legacy or UpVoice 2021—transmitted information collected from the user via a static salt. (Dor Dep. Tr., 151:2–152:7, 156:10–157:1, Jan. 11, 2021.) After *AdGuard* made its blog post criticizing Unimania-developed applications in May 2018, Unimania and BrandTotal began using a random salt, which Mr. Karve testified [REDACTED]. (Karve Dep. Tr., 98:10–99:18.) UpVoice, which was launched after May 2018, always used a random salt. (Dor Dep. Tr., 151:2–152:7, 156:10–157:1, Jan. 11, 2021.)

[110] My review of the source code of UpVoice Legacy, discussed above in section 5.1.1.1, confirms any identification captured from Facebook was hashed with a random salt.

[111] UpVoice 2021 does not collect any user information. It only collects advertising information. It therefore does not transmit any user information in any way that risks the users' privacy.

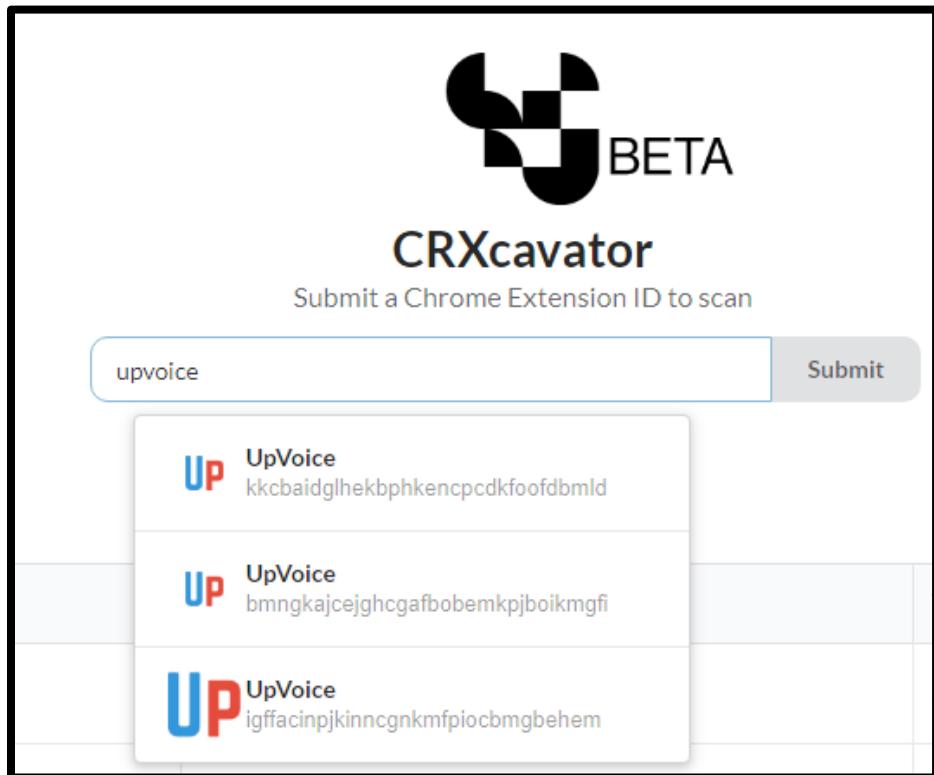
**5.2 It Would Have Taken Facebook Approximately 30 Hours to Fully
Investigate BrandTotal.**

[112] Beginning in April 2020, Mr. Karve reviewed multiple versions of the UpVoice code that were available between April and October 2020. (ECF No. 42, ¶ 14.) [REDACTED]

[REDACTED] (Karve Dep. Tr., 150:9–25.)

[113] On January 22, 2021, I reviewed the crxcavator.io webpage. Searching “upvoice,” the webpage presented three results:

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(<https://crxcavator.io/>, last accessed January 22, 2021.)

[114] For the first option (kkcbaid....), crxcavator.io listed 16 versions, including version numbers: 2.10.1377; 2.10.1387; 2.10.1388; 2.10.1389; 2.10.1391; 2.10.1396; 2.10.1397; 2.10.1398; 2.10.1410; 2.10.1413; 2.10.1415; 2.10.1425; 2.10.1428; 2.10.1430; 2.10.1439; and 2.10.45. (Appendix D.) For the second option (bmngk....), crxcavator.io listed five version numbers: 2.10.1413; 2.10.1425; 2.10.1428; 2.10.1439; and 2.10.1445. (Appendix E.) For the third option (igffacinp....), crxcavator.io listed only version number 2.10.1445. (Appendix F.)

[115] Mr. Karve testified [REDACTED]

[REDACTED] (Karve Dep. Tr. 84:15–18.) [REDACTED]

(*Id.*, at 80:16–81:21.) [REDACTED]

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[REDACTED] . (*Id.* at 86:7–87:12.)

[116] Mr. Karve also testified, [REDACTED]

[REDACTED] . (*Id.* at 85:20–86:3, 87:13–88:89.)

[117] I agree. I have spent approximately 30 hours reviewing the UpVoice extension source code to investigate what data UpVoice collects, from whom UpVoice collects data, and how that data is transmitted to BrandTotal. In doing so, I reviewed each version of UpVoice listed above, [REDACTED]

[REDACTED] except I used VI as my text editor rather than Sublime Text.

[118] In my opinion, it should take even less time to review the UpVoice 2021 code because much of the code (i.e., the collection of advertising information) is the same or very similar. Moreover, review of the code with the testimonial aid Mr. Dor produced (Appendix H) makes any review much easier.

5.3 BrandTotal Cannot Obtain the Information It Needs from the Sources Facebook Allows Non-Facebook Entities to Access.

[119] I understand the parties disagree whether BrandTotal could obtain the information through Facebook's APIs and authorized channels. (*See* 2020-10-26 Hr'g Tr., 9:2–13:25) I further understand that, at the October 26 hearing, Facebook's counsel stated BrandTotal "could start with the ad library, and figure out if that gets them everything they need, or almost everything they need. . . . Then we could go to the APIs which are available through Facebook, which are publicly known to all developers." (*Id.* at 12:4–13:14.)

[120] I also understand that, during discovery, BrandTotal asked Facebook to: "Explain Your understanding of what is 'publicly available,' as you use that term in paragraph 20 of the Complaint, including an identification of what categories of advertisement information BrandTotal collects are and are not publicly

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available (e.g., whether impressions are available through the Ad Library for all ads or only political ads), and the basis for Your categorization,” and that Facebook responded:

The Ad Library contains publicly available—i.e., non-password protected—information about advertisements shown on certain Facebook products. That information can be viewed by anyone who visits the Ad Library site. For all active ads, the Ad Library contains the ad image (including any videos), the text of the ad, any call to action button, a URL to the ad in the Library, the Ad Library ID, any alternate versions of the ad, the platform(s) on which the ad appears, the date on which the ad began running, the name of the advertiser, a link to the advertiser’s Facebook Page, the number of followers the advertiser has on Instagram, and the number of likes the advertiser has on Facebook. Ads can be searched by advertiser name. When viewing all ads by an advertiser, ads can be filtered by location (country), platform (Facebook, Instagram, Audience Network, and Messenger), and impressions by date. Filtering by impressions by date will display any ad that had impressions on the selected date or during the selected date ranges.

For ads related to social issues, elections, or politics (“SIEP”), the Ad Library contains inactive, as well as active, ads and contains information additional to what is included for non-SIEP ads. A number of advertisements are considered SIEP ads. For SIEP ads, in addition to what is included for non-SIEP ads, the Ad Library also indicates whether the ad is active or inactive and contains information on the estimated amount of money the advertiser spent on the ad, the ad’s impressions (by range), a demographic breakdown of who was shown the ad (by age and gender), and a geographic breakdown of the states where the ad was shown. In addition to the filters available for non-SIEP ads, SIEP ads can also be filtered by delivery region (state), whether the ads are active or inactive, advertiser, any disclaimer with which the ads ran, and the potential reach of the ads. SIEP ads can also be searched for by keyword, in addition to the sponsor name.

(Facebook Resp. to Interrogatory No. 3, dated December 23, 2020.)

[121] BrandTotal also asked Facebook to “[d]escribe how, if at all, BrandTotal can currently gather data related to Facebook advertisements, including user demographic data (e.g., gender, date of birth (month and year), location, relationship status, user interests) and user advertisement impression data (e.g., the amount of time an advertisement is seen, an advertisement’s creative ID, click through rate, and organic reach) from ‘publicly available sources[,]’” and, Facebook responded:

As Facebook understands the term “publicly available,” *see supra* Response to Interrogatory 3, advertising related information is publicly available to anyone visiting

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the Ad Library or from public Pages. Advertising-related information that is *not* publicly available—i.e., in this context, information that is accessible by an authenticated user—is accessible through Facebook’s APIs and the Ad Manager tool. According to publicly available information, the Insights API, for example, provides a single, consistent interface to retrieve ad statistics. With the ads_read permission, an app can pull ad report information for ad accounts for which access has been granted. The API can be used to access ad performance data for use in custom dashboards and data analytics. The Insights API, for example, can be used to query data about impressions, age targeting, and the number of clicks on an ad.

(Facebook Resp. to Interrogatory No. 4, dated December 23, 2020.)

[122] I have reviewed the Facebook Ad Library, Ad Manager tool, and APIs (including the Insights API and Marketing API) to determine whether BrandTotal could obtain the information it needs through these channels. I concluded that almost all the information BrandTotal requires is not available, as I detail in the paragraphs below.

[123] I first searched for an advertisement by President Joe Biden, which would be deemed to be part of “Social Issues, Elections, or Politics” (“SIEP”). I was able to filter by numerous criteria, including “active” (i.e., currently running) or “inactive” advertisements. I selected an “inactive” advertisement, and was then able to see the amount spent, the approximate number of impressions (e.g., “>1M”), the gender of whom was shown the advertisement, and where the advertisement was shown:



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[124] In contrast, when I searched for a non-SIEP advertisement, most of this information was not available. Because BrandTotal is “designed to give media, insights, and analytics teams full visibility into their competition’s social media strategy,” (www.brandtotal.com (last accessed March 11, 2021)), the need for insights into commercial, or non-SIEP, advertisements is extremely important. To test what information was available for non-SIEP advertisements, I searched for “Ford Motor Co.” Unlike with SIEP-advertisements, I was unable to see inactive advertisements. Even after selecting an advertisement, all of the information discussed above was unavailable for the non-SIEP advertisement. Instead, I was only able to view the advertisement’s “creative” (i.e., the image of the advertisement.”)

The screenshot shows a comparison between an ad and its associated page on Facebook.

About the Ad: A sponsored post from Ford Motor Company. The ad features a photo of a man with a shaved head and goatee, wearing a black shirt and a white bandana around his neck. The background is a blurred interior of a bar or restaurant. The text overlay reads: "This Showdawg is a loyal member of the Browns' Dawg Pound. Cleveland, this is your chance to vote Ray into the Ford Hall of Fans." Below the photo is a large "VOTE FOR RAY" button. The ad includes the Ford Hall of Fans logo and a small "Learn More" link.

About the Page: The official Facebook page for Ford Motor Company. It shows 15,794,991 likes and 4,527,533 followers. It also lists the company's social media handles: @ford on Facebook and @ford on Instagram. The bio describes Ford as "We build the most beloved truck on the road. The iconic American sports car. And the SUV most people think of when they think of an SUV."

See Ads: A link located at the top right of the page section, which likely leads to active ads.

[125] In addition, when I clicked on “See Ads” in the section “About the Page,” I was only able to see active advertisements that appeared on the page. Mr. Newman (who Facebook designated to speak as to

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"[w]hat information is and is not 'publicly available' from the Facebook Network as it relates to the information BrandTotal collects through UpVoice . . .") testified [REDACTED]
[REDACTED]
[REDACTED]

[126] I then selected an advertisement by Ford Motor Company that featured a video creative. Here again, I was unable to see information regarding the demographics of users that were shown the video advertisement, or the number of views the video had received.

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The screenshot displays two panels from the Facebook Ad Library. The left panel, titled 'About the Ad', shows a sponsored post from 'Ford Motor Company'. It features a video thumbnail of a 2021 Ford F-150 truck with a person standing next to it. The ad copy includes '#FordF150 #MoreThanTough #BuiltFordProud'. Below the video is a large image of the truck with the text 'THE ALL - NEW 2021 FORD F-150 WITH ICONIC DJ D-NICE'. The right panel, titled 'About the Page', shows information for 'Ford Motor Company', including its Facebook page stats (@ford: 15,794,491 likes, 4,527,641 followers) and a brief description: 'We build the most beloved truck on the road. The iconic American sports car. And the SUV most people think of when they think of an SUV.' At the bottom of the left panel, there's a link to 'FORD.COM' and a 'Learn More' button.

[127] In summary, while the Ad Library provides information about SIEP-advertisements—including the demographics of Facebook users that were shown a SIEP-advertisement and the advertising metrics (i.e., impressions such as likes, shares, and comments or video views)—this information was **not** available for non-SIEP advertisements, which I understand are the majority of advertisements for which information is needed by BrandTotal. For non-SIEP advertisements, only the advertisement's creative (i.e., image) is

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available. Moreover, the Ad Library does not provide information regarding inactive advertisements the advertiser has run.

[128] I next visited the “Ad Manager tool” Facebook identified in its response to interrogatory number four. This tool did not allow me to view information on any advertisements, other than advertisements that I myself was running. [REDACTED]

(See Newman Dep. Tr., 26:21–28:4.)

[129] I also visited the “Ad Insights API,” which Facebook also identified in response to Defendants’ interrogatory number four and claimed “can be used to query data about impressions, age targeting, and the number of clicks on an ad.” (Facebook Resp. to Interrogatory No. 4, dated December 23, 2020.) My inspection of this API nevertheless showed this information was available only for an advertiser’s own information. [REDACTED]

[REDACTED] (Newman Dep. Tr., 90:8–16; *id.* at 94:15–21.)

[130] I understand that, during the deposition of Josh Newman, Facebook produced a “testimonial aid” that was prepared by “experts in APIs and Ad Library” and that [REDACTED]

[REDACTED] (Newman Dep. Tr., 15:2–18,

Ex. 1 to Newman Dep.) I have reviewed this document and attached a copy as appendix G to my report.

[131] Initially, I note that the chart indicates some information BrandTotal collects is not available through any “approved” Facebook source. This includes: the relationship status of the user that is shown the advertisement; the Facebook user ID; and the advertising interests. Appendix G.

[132] The “testimonial aid” also identifies the “Marketing API” as a source for some categories of information, despite this API not being identified in Facebook’s response to Defendants’ interrogatory number four. Nevertheless, this API is also restricted to data for campaigns the user/advertiser is running or has approval to access. [REDACTED]

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[REDACTED] (Newman Dep. Tr., 94:22–95:12.) In other words, the Marketing API cannot be used to provide the competitive analysis that is the core of BrandTotal’s business.

[133] I understand a few (approximately three to five) of BrandTotal's customers that advertise on Facebook gave BrandTotal permission to access their data using the Marketing API. (Dor Dep. Tr., 53:12–55:4, Jan. 11, 2021.) Using this access, BrandTotal collected [REDACTED]

(*Id.* at 54:2–55:12.)

(*Id.* at 57:18–58:12.)

[134] As I discuss above, BrandTotal's business requires the ability to collect data regarding how parties other than BrandTotal advertise on Facebook. To provide metrics regarding how automotive companies such as Ford and Chevy are advertising, BrandTotal must be able to collect data regarding what advertisements those companies are running, to whom the advertisements are being shown, and how users are interacting with those advertisements. With this in mind, I have prepared the chart below, which summarizes my review and analysis of whether the information BrandTotal needs to provide the services it offers to its customers is available through the Facebook Ad Library and APIs Facebook has identified.

CONTAINS INFORMATION MARKED CONFIDENTIAL AND/OR CONFIDENTIAL-ATTORNEYS' EYES ONLY

Information needed	Available via Ad Library?	Available via Insights API?	Available via Marketing API?
Gender	No	No	No
Date of birth	No	No	No
Location (state)	No	No	No
Location (country)	No	No	No
Geolocation data	No	No	No
Relationship status	No	No	No
Panelist/user ID	No	No	No
Panelist/user advertising interests	No	No	No
Creative ID	No	No	No
Time ad shown to user	Start time only	No	No
Advertiser identity	Active ads only	No	No
List of advertiser's active advertisements	Yes	No	No
List of advertiser's <u>inactive</u> advertisements	No	No	No
Advertisement creative (text, images, video)	Active ads only	No	No
Advertisement impressions	No	No	No
Advertisement comments	No	No	No
Advertisement shares	No	No	No

CONTAINS INFORMATION MARKED CONFIDENTIAL AND/OR CONFIDENTIAL-
ATTORNEYS' EYES ONLY

[135] As shown in this chart, the overwhelming majority of information BrandTotal requires to provide its services to customers and maintain its business (i.e., information about advertising campaigns run by companies other than current BrandTotal customers that have given BrandTotal access to their own data via the Insights or Marketing APIs) is unavailable.

[136] I have reviewed the chart prepared by Mr. Dor (discussed as Exhibit 6 to his deposition) and it is consistent with my understanding and the chart I created above. (Dor Dep. Tr., 132:12–139:5, Jan. 11, 2021.)

6. CONCLUSION

[137] All of the opinions stated above are based on my review of the documents and information listed in Appendix B to my report. I reserve the right to supplement and/or amend my opinions based on additional information I may receive.

Dated: March 12, 2021

Respectfully Submitted,

Robert Sherwood

Robert Sherwood

Appendix A

Robert J. Sherwood

12015 Wenonga Ln, Leawood, Kansas 66209 - 913-269-6589 -
webtalkwithbob@gmail.com

Technology Experience

Mr. Sherwood is a consultant and expert witness to the legal community on matters relating to computing devices, software applications and Internet advertising.

Mr. Sherwood has testified, and is qualified by education, training, experience or occupation, as an expert, on the following matters: IP address server analysis and extraction, search engine ranking methods, HTML and XML code analysis, robot analysis, subscription based user and affiliate systems, subscription based systems for social networking, CPM advertising, venture capital portfolio analysis, click thru rates, key word selection techniques, co-branding, merchant selection and analysis for mobile and desktop devices, database development and population, Google Local or Places, SEM campaigns, exclusivity content sharing agreements, mobile device applications, click thru conversion rates, affiliate agreements, revenue sharing and tracking analytics, application software with any text to speech or speech to text software, unauthorized use of names, false advertising, unfair competition, business valuation, intellectual property, term sheets and patent value, trade secret misappropriation, breach of employment contracts, Internet advertising, lead generation, affiliate tracking, Website development and deployment, software developer kit license interpretation, software development best practices, software deployment methods, runtime analysis, derivative product issues, intellectual property valuation based on patents, Website analysis, valuation of custom designed software, custom and practice issues associated with intellectual property licensing fees, source code and object code license agreements, investment letters of intent, secondary considerations for establishing patent validity, software best practices for enterprise software development, methods of measuring license use, measurement data, verification of software use, functionality and conformance with contract development specifications, derivative product rights, best practices with respect to derivative products, conformance to license agreement specifications for software development, use and distribution.

Employment History

Current: Independent consultant to legal community and President of Identimap, Inc.

The company develops business productivity software.

July 1996 to March 2015: SmartText Corporation, President.

The company developed and licensed specialized software applications under the title LegalPoint. The company has no current licensees. The company holds the publication rights to Mr. Sherwood's publications.

October 1991 to July 1997: The Center for Business Innovation (CBI), President.

CBI was a minority shareholder in 53 emerging growth companies including computer, communications and software businesses. President of a CBI subsidiary, Capital for Entrepreneurs, Inc. a venture capital fund financed by the Ewing Marion Kauffman Foundation.

September 1994 to 2000: Distinguished Lecturer, University of Kansas

Taught multi-campus courses in Entrepreneurship & Strategic Management of Technology.

Robert J. Sherwood

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December 1986 to October 1989: RasterOps, Inc. Vice President.

Company was engaged in the development, manufacture and sales of software for personal computer display devices.

January 1983 to December 1986:

Personal sabbatical and as a sole proprietor provided consulting services to technology firms.

February 1975 to December 1982: EDC, Inc. President.

Co-Founder of a Kleiner & Perkins venture capital backed company engaged in combining computer software technology with environmental improvement devices.

February 1967 to May 1974: Envirotech, Inc. Director Europe.

A start-up company that grew to \$500 million in sales and 5,000 employees in 6 years.
Managed patent portfolio and computer engineering design modeling.

February 1966 to February 1967: Dorr Oliver, Inc.

A product development position.

Education

University of Kansas BS Civil Engineering 1960-1964

University of Kansas MS Environmental Engineering 1964-1966

California State College Hayward MBA 1968-1972

Honorary Doctorate DeVry University 1995

Graduate Fellowship Research Award Grant

University of Connecticut Business School graduate courses

Berlitz French Immersion School Graduate

Babson College 10th Symposium for Entrepreneurship Educators

Center for Creative Leadership Graduate University of North Carolina

Web Developers Boot Camp-Java Scripting and HTML

Association of Information Technology Professionals

Robert J. Sherwood

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Liebler, Gonzalez & Portuondo

Engaged on behalf of defendant to prepare an affirmative expert report, rebuttal report and testify at trial. Harte Hanks, Inc., Plaintiff V. Juan Castaneda, Lima Tech Group, LLC, and Primus Intellectual Solutions, LLC, In The United States District Court for The Southern District Of Florida, Ft. Lauderdale Division Case No. 0:19-CV-62134-RAR/Strauss.

Reinhart Boemer Van Deuren, S.C.

Engaged on behalf of Defendant Rise Interactive Media and Analytics, LLC to provide expert services in litigation between Sears Hometown and Outlet Stores, Inc. versus Rise Interactive Media and Analytics, LLC. Circuit Court Cook County Illinois.

Wang IP Law Group, P.C.

Engaged on behalf of Plaintiff to provide expert services and testify at trial. Dr. Peng Holding, Inc. v. Pei-Jun Kuo Case No. BC703529 February 2020.

Blegen & Garvey

Engaged on behalf of Defendant, Jeffrey Batio. to provide a rebuttal report. Testified at trial May 2019. United States District Court For The Northern District Of Illinois United States V. Jeffrey Batio 16 Cr 425

Scott D. Owens, P.A. and The Law Offices of Jibreil S. Hindi

Engaged on behalf of Plaintiff to provide expert services in conjunction with the matter of a class action litigation brought by Plaintiff-Bilal Saleh against Defendant-Crunch, LLC and Crunch Franchising, LLC and Deliu, LLC collectively ("Defendant") regarding violation of the Telephone Consumer Protection Act, 47 U.S.C § 227, et seq. ("TCPA").

Kaplan Fox & Kilsheimer LLP

Engaged on behalf of Plaintiffs on a class action matter.

Burns and Levinson LLP

Engaged on behalf of Defendant Internet Brands, Inc., VetNetwork, LLC v. Internet Brands, Inc., 15-00044 (D.N.H)

Mayer Brown LLP

Robert J. Sherwood

12015 Wenonga Ln, Leawood, Kansas 66209 - 913-269-6589 -
webtalkwithbob@gmail.com

Engaged as consultant to Google, Inc. on a Covered Business Method Patent Declaration.

Williams & Connolly LLP

Rockstar Consortium US LP and Netstar Technologies LLC v. Google, Inc. A patent infringement matter regarding U.S. Patent Nos. 6,098,065; 7,236,969; 7,469,245; 7,672,970; 7,895,178; 7,895,183; 7,933,883 relating to search engines. Engaged on behalf of Google, Inc.

Cooley Godward Kronish LLP

Christina Egner and Rickey Glasco v. Sony Electronics, Inc. A class action lawsuit brought against Sony in the United States District Court Southern District of California, Case No. AJB 09cv2109 AJB (MDD). Engaged on behalf of Sony to prepare an expert report on computer laptop failure rates.

Kilpatrick Townsend & Stockton

Branch Banking and Trust Company - EMG Technologies, LLC - Invalidity Analysis and Covered Business Method Review No. 2. The patent at issue is U.S. Patent No. 7,441,196 relating to e-commerce, using the World Wide Web to display advertisements and accepting user inputs to navigate commercial Websites. The subject matter includes well-known components such as hyperlinks, mark-up languages, navigation interfaces, and selectable inputs. Provided expert declaration on behalf of Branch Banking and Trust Company in support of CBM.

Fitch, Even, Tabin & Flannery LLP

A patent infringement action for plaintiff's United States Patent No. 7,054,830 entitled "System and Method for Incentive Programs and Award Fulfillment" Kroy IP Holdings, LLC v. Safeway, Inc., Case No. 2:12-cv-00800 (E.D. Tex.), and Kroy IP Holdings, LLC v. The Kroger Co., Case No. 2:13-cv-00141 (E.D. Tex.). Provided two infringement reports, declarations, deposition and a validity report on behalf of plaintiff Kroy IP Holdings, LLC.

Kilpatrick Townsend & Stockton

Branch Banking and Trust Company - EMG Technologies, LLC - Invalidity Analysis and Covered Business Method Review. The patent at issue is U.S. Patent No. 7,441,196 relating to e-commerce, using the World Wide Web to display advertisements and accepting user inputs to navigate commercial Websites. The subject matter includes well-known components such as hyperlinks, mark-up languages, navigation interfaces, and selectable inputs. Provided expert declaration on behalf of Branch Banking and Trust Company in support of CBM.

Arent Fox

Tre Milano, LLC vs. Amazon.com, Inc., Case No.: BC 460511, Superior Court of the State of California County of Los Angeles, Central District. Engaged by Amazon to opine on issues surrounding the impact of customer reviews on retail and on-line sales of a consumer product.

Girard Gibbs LLP & Kaplan Fox & Kilsheimer LLP

Robert J. Sherwood

12015 Wenonga Ln, Leawood, Kansas 66209 - 913-269-6589 -
webtalkwithbob@gmail.com

Engaged as a consultant on behalf of Plaintiffs on a class action matter. Yahoo!, Inc. is the defendant. Examined terms of service, wiretapping issues, user profiling related patents, targeted advertising methods, user interest mathematical modeling techniques and email delivery technologies.

Cooley LLP

B.E.Technology, LLC v. Facebook, Inc U.S. Patent No. 6,628,314 Computer Interface Method and Apparatus with Targeted Advertising. Engaged to provide declaration in support of Facebook, Inc. Petition for IPR, invalidity report and non-infringement report.

Sterne, Kessler, Goldstein and Fox P.L.L.C.

A Google Petition for a Covered Business Method proceeding before the United States Patent and Trademark Office involving U.S. Patent No. 7,441,196 owned by EMG Technologies. Engaged to provide a declaration and deposition in support of Google's Petition.

Foley & Lardner LLP

Robocast, Inc. v. Apple, Inc. (1:11-cv-00235; USDC DE); Robocast, Inc. v. Microsoft, Corporation (1:10-cv-01055; USDC - DE). Engaged by Robocast to provide expert report on advertising methods and measurement analytics, deposition and trial testimony.

Keker & Van Nest, LLP

Suffolk Technologies, Inc. v. AOL Inc. and Google, Inc. U.S. Patent No. 6,081,835, An Internet Server and a Method of Controlling an Internet Server, issued June 27, 2000. Case No. 1:12-CV-625-TSE-IDD, in the United States District Court for the Eastern District of Virginia Alexandria Division. Engaged to provide infringement rebuttal report, deposition and trial on behalf of Google.

Wilson Sonsini Goodrich & Rosati, P.C.

General Electric Company vs. Kontera Technologies, Inc. Case No. 1:12-cv-00525-LPS. U.S. Patent No. 6,902,074 and U.S. Patent No. 6,581,065, Dynamic Insertion and Updating of Hypertext Links for Internet Servers. Engaged to provide declaration in support of Kontera Technologies, Inc. Petition for IPR, invalidity report and non-infringement report.

Heller Ehrman White & McAuliffe

Overture Services, Inc. (Yahoo!) v. FindWhat.com. Case No. SACV 03-00685 (CJC) (EX). The lawsuit charged FindWhat.com with infringement of Yahoo! U.S. Patent No. 6,269,361, System and Method for Influencing a Position on a Search Result List Generated by a Computer Network Search Engine (the '361 Patent). The '361 Patent covers various advertising methods relating to bid-for-placement product and pay-per-click performance technologies. Engaged by Yahoo!, Inc. to provide expert report on Secondary Considerations, deposition and trial testimony.

Vinson & Elkins, McDermott Will & Emery, Fulbright and Jaworski

Robert J. Sherwood

12015 Wenonga Ln, Leawood, Kansas 66209 - 913-269-6589 -
webtalkwithbob@gmail.com

Orion IP, LLC v. Staples et al. (Harley Davidson, Toyota, and Home Depot) Civil Action No. 2:04-CV-297 (LED). Orion IP asserted U.S. Patent No. 5,367,627 Computer Assisted Parts Sales Method and U.S. Patent No. 5,615,342, Electronic Proposal Preparation System.

Engaged to examine intellectual property valuation based on two patents, alternative cost issues surrounding the implementation of non-infringing substitute computer-based methods for the '342 and '627 patent, estimating non-infringing substitutes, estimate hypothetical negotiation licensee fees, examine patent invalidity based on prior art, Website analysis, valuation of custom designed software and custom and practice issues associated with intellectual property licensing fees. Engaged by Defendants to provide expert report and deposition.

Shughart Thomson & Kilroy

Emergis Technologies, Inc., f/k/a BCE Emergis Technologies, Inc. v. Kansas City Power & Light Co., in the United States District Court for the Western District of Missouri Kansas City Division, Civil Action No. 06-0201-CV-W-REL.

Emergis filed suit against KCP&L alleging infringement of a patent, entitled "Electronic Invoicing and Payment System" U.S. Patent No. 6,044,362 ("the '362 Patent") and seeking unspecified monetary damages and injunctive relief. This patent relates to automated electronic bill presentment and payment systems, particularly those involving Internet billing and collection. Engaged to estimate a non-infringing substitute, establish a license fee based on hypothetical negotiation, examine license agreement for conformance to specifications and software distribution rights. Engaged by defendant. Prepared expert report.

Arnold & Porter LLP and Norris Keplinger & Logan LLP

CSU, Inc. v. Xerox, Inc. In 1994, CSU filed suit against Xerox, alleging that Xerox violated the Sherman Antitrust Act by monopolizing the market for high speed copiers. The central issue was whether a unilateral refusal to license or sell intellectual property protected by patent or copyright is absolutely immune from a claim of monopolization and attempted monopolization under Section 2 of the Sherman Antitrust Act. Xerox counter claimed for patent and copyright infringement.

Engaged to analyze the CSU \$20 million business and determine if CSU would have grown to \$100 million, but for Xerox's refusal to sell CSU a patented product. Examined all documents such as financials, bank loans, management, business plans, capital formation documents and board decisions. Expert report, trial preparation and deposition on behalf of Xerox, Inc.

Allen Dell, P.A.

Accusoft Corporation f/k/a Pegasus Imaging Corporation v. John P. Reinhart, Jeffrey D. Amrein, Allscripts-Misys Healthcare Solutions, Inc. f/k/a Allscripts Healthcare Solutions, Inc. and AllscriptsMisys, LLC f/k/a Misys Healthcare Systems, LLC and successor by merger to Allscripts, LLC. In the Circuit Court of the Thirteenth Judicial Circuit in and for Hillsborough County, Florida Complex Business Litigation Division, Case No. 10-CA-018238 Division L. Engaged to provide expert report, deposition and trial on behalf of Pegasus Imaging Corporation.

Farella Braun + Martel LLP

Robert J. Sherwood

12015 Wenonga Ln, Leawood, Kansas 66209 - 913-269-6589 -

webtalkwithbob@gmail.com

Brandgenuity LLC Plaintiff v. Zynga Inc., f/k/a Zynga Game Network, Inc. In the Superior Court of the State of California in and for the County of San Francisco, Case No. CGC-12-520738 Engaged on behalf of Zynga. Plaintiff claims they supplied services to Zynga, for which Zynga refused to pay Plaintiff a \$18 million commission for a licensing agreement for the use of Zynga brand names, such as Farmville. Provided analysis and examination on custom and practices in the brand licensing industry including agency fee schedules, royalty rates, license agreements, integration clauses and agency agreements. Engaged to provide expert report, deposition and trial.

Law Office of Mick Lerner, PA and Stinson, Mag & Fizzell

4th Trimester v. Reed Publishing, et al. Determine the value of a technology business. Expert report, deposition and testify at Arbitration for defendant.

Thelen Reid & Priest LLP

DJ&J Software Corporation dba Egghead Software and Elecom Corporation v. Casahl Technology, Inc. Examine sales of software from a reseller, but for developer's refusal to supply current versions, ability of distributor to manage software through normal sales channels, value of software and quantity that would have been sold, but for software developer's actions. Expert report and deposition for plaintiff.

Asciano & Campo LLP

Silicon Valley IPO Network et al. v. Kevin Von Poppen et al. Determine business value of video compression software had venture capital firm invested in startup and provided initial funding. Expert report for plaintiff.

Morrison & Hecker LLP

Universal Business Computing Company, Inc. and Ken Garen v. Global Enterprise Solutions, Inc. and Brian Unger. Determine value of founders equity share in the business had the founders had an agreement in writing for equity ownership, determine share price and actual total share ownership under premature departure of one of the cofounders. Expert report, deposition and testify at Arbitration for defendant.

Steefel Levitt & Weiss

Examine license agreement and software for conformance to contract specifications for functionality and use. Expert report and deposition.

Grey Cary Friedenrich

Examine license agreement for computer hardware and software for conformance to contract specifications for functionality and use. Consultant for plaintiff.

Cooley Godward LLP

Robert J. Sherwood

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Examine license agreement and software for conformance to contract specifications for functionality and use. Consultant.

Michael Best & Friedrich

Examine Websites for duplication of code and ownership of various software Website commerce and affiliate development components. Expert report for defendant.

Cotton & Gundzik LLP

Digital Insight v. HNC Software. Examine co-branding, OEM relationship, software customization, licensing of Website and business loss due to inappropriate distribution of Website software. Examine license agreement for conformance to specifications and software distribution rights. Expert report for plaintiff.

Crosby Heafey Roach & Smith

Raytheon Company vs. Webgear, Inc. & Ted Cooper, Case No. V-020232-9 Superior Court of California County of Alameda. Examine license agreement for conformance to specifications, verification of computer hardware and software documentation instructions, verification of software and wireless computer product use and determine value of software. Expert report for plaintiff.

Howrey Simon Arnold & White LLP

Business Management Systems Corporation v. Cable & Wireless USA, Inc. Civil Action No. 00-B-1069 United States District Court. Examine software best practices of enterprise software developer and methods of measuring license requirements, measurement data, and verification of software use, functionality and conformance with contract purchase development specifications. Examine license agreement for conformance to specifications and software distribution rights. Expert report, deposition and testified at trial for defendant.

Mannatt Phelps & Phillips LLC

Verity, Inc. v. Broadvision, Inc. Case No. C01-20501 RMW (PVT) ADR United States District Court for the Northern District of California San Jose Division. Examine license agreement and software for conformance to specifications, analyze customer software purchase levels for various levels of product upgrades, determine the number of customers that would have upgraded, but for the licensee's inappropriate software distribution. Expert report, deposition and testified at Arbitration for plaintiff.

Schlagel Damore & Gordon

Determine value of enterprise software to licensor where licensee had developed a derivative product, examine business history, development and reproduction costs. Expert report and deposition for plaintiff. Examine license agreement for conformance to specifications and software distribution rights.

Crosby Heafey Roach & Smith

Robert J. Sherwood

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Examine license agreement for conformance to specifications and software distribution rights.
Expert report for defendant.

America On-Line Corporate Counsel

Investigate the methods that might be used to establish comparative market values for email addresses and to indicate possible economic benchmarks. Civil suit regarding stolen email addresses and damages resulting from spamming. Consultant to AOL.

Boies, Schiller & Flexner LLP

The SCO Group Inc. vs. International Business Machines Corporation United States District Court, District of Utah, Case No. 03-CV-0294. Examine license agreements for derivative product rights, best practices with respect to derivative products, conformance to license agreement specifications for software development, use and distribution. Expert report for plaintiff.

Law Offices of Jeffery P. Widman

SunLan Corporation vs. Zenith Infotech, Inc. Case No. 04CC02648 Superior Court of California, County of Orange. Examine issues relating to sale of goods, distributor revenue sharing and pricing with respect to industry practices for computer hardware and software, OEM licensing and distribution agreements. Examine license agreement for conformance to specifications and software copy distribution rights. Expert report and deposition for defendant.

Chan Law Group

Perfumebay.Com, Inc. vs. EBAY, Inc., Case No.: CV04-1358 WDK (SSx) United States District Court for the Central District of California. Examine issue surrounding the use of trade names in a domain name including search return listings. Expert report for plaintiff.

Latham & Watkins LLP

Itech Group, Inc. v. National Semiconductor Corporation. Case No. CV 810872 Superior Court of the State of California County of Santa Clara. Examine source code and object code license agreements and investment letters of intent surrounding a software licensing dispute. Expert report, deposition and testified at jury trial for defendant.

Latham & Watkins LLP

GR Match LLC v. Market Range LLC, et al. AAA Case Number 75-181-Y-00067-06. Examine issues relating to Website tracking methodologies for sponsored ads, natural search returns, advertising, customer life time value and affiliate tracking. Expert report and deposition for plaintiff.

Capobianco and Bram, LLP

Dovebid, Inc. v. eBay Inc., United States District Court for the Central District of California. Consultant for plaintiff.

Orrick, Herrington & Sutcliffe LLP

Robert J. Sherwood

12015 Wenonga Ln, Leawood, Kansas 66209 - 913-269-6589 -
webtalkwithbob@gmail.com

Viewsonic Corporation vs. AmTran Technology Co., Ltd. United States District Court, Central District of California Case No. CV 05-5864 GAF (RZx). Expert report for defendant.

Mayer, Brown, Rowe & Maw LLP

Positive Ions, Inc. v. ION Media Networks, Inc. United States District Court Central District of California Case No. CV 06-4296 ABC (FFMx). Expert reports for defendant and counter claimant.

Needham, Davis, Kepner & Young, LLP

Ecompare v. Priceline.com. Engaged as a consultant for plaintiff in trade secret matter.

Farella Braun + Martel LLP

Securities and Exchange Commission v. Mark Leslie, United States District Court Northern District of California San Jose Division, Civil Action No. C 07-3444 JF. Engaged as expert witness for defendant. Expert report and deposition.

Allen Dell, P.A.

Pegasus Imaging Corporation v. Northrop Grumman Corporation et al., In the United States District Court, Middle District of Florida, Tampa Division Case No. 8:07-cv-01937. Engaged by Plaintiff. Examine license agreement for conformance to specifications and software copy distribution rights. Provided Expert report, deposition, trial assistance. The matter concerned a software developer kit license interpretation, software development best practices, software deployment methods, runtime analysis, and derivative product issues.

Nelson& Weinkauf

Trancos, Inc. dba Coregmedia vs. Brian Harley, Tallac Ventures, Inc., dba Tallacmedia.com and dba Leadshot, Superior Court of California, County of San Mateo-Case No. CIV-492361. Engaged by Plaintiff. Provided expert analysis and deposition assistance. The matter concerned trade secret misappropriation, breach of employment contract, Internet advertising, lead generation, affiliate tracking, and Website development and deployment.

Nixon Peabody LLP

Serena Software, Inc. v. Con-Way Inc. Case No. CIV 491585. Engaged by Defendant. Expert report. Examine license agreement for conformance to specifications and software copy distribution rights. Plaintiff contends that defendant breeched a license agreement. Further that because of this breech, Plaintiff also contends that Defendant should be compelled to pay additional license fees for the total capacity of all the CPUs in the network.

The Law Office of Ilona Antonyan, APC.

Avalon RF, Inc. vs. WIFI, Pacifitek Systems, Inc. et al. Case No. 868507 Superior Court of the State of California for the County of San Diego.

Evolution Software, Inc.

Robert J. Sherwood

12015 Wenonga Ln, Leawood, Kansas 66209 - 913-269-6589 -
webtalkwithbob@gmail.com

Evolution vs. SunTrust Bank, Case No. 01-2409-JWL, United States District Court for the District of Kansas. Provided an expert report on the valuation of Data Base Management Software programs used in the Premium Finance Industry.

Dempsey & Johnson P.C.

Connie Chein M.D. v. Michele Hakakha et al., Case No. SC112820, Superior Court for the State of California for the County of Los Angeles. Complaint for unauthorized use of Plaintiff's name, false advertising, unfair competition. Engaged as consultant to examine Google Places, mobile device merchant selection, Website development techniques, traffic redirect from competitive Websites.

Equal Employment Opportunity Commission

EEOC v. Dolgencorp, LLC, Case No. 1:11-CV-0755-SEB-DKL, in the United States District Court for the Southern District of Indiana Indianapolis Division. Engaged by EEOC to determine the compatibility of Defendant's hardware, operating systems and application software with any text to speech or speech to text software including providing an expert report, deposition and trial testimony.

Shaub & Williams LLP

Pricegrabber.com, Inc. v. Unister GMBH, United States District Court Central District of California Case No. CV 10-09580 SJO(MANx). Engaged by Unister to provide expert report, deposition and trial testimony. Dispute involves items such as CPM for advertising, merchant analysis, click thru rates, key word selection techniques, co-branding, SEM campaigns, exclusivity content agreements, click thru conversion rates, affiliate agreements with Amazon, Overture and ShopZilla, Google AdWords, revenue sharing and tracking analytics.

Robert J. Sherwood

12015 Wenonga Ln, Leawood, Kansas 66209 - 913-269-6589 -
webtalkwithbob@gmail.com

Testimony 2015 - 2020

The following is a list of my expert witness engagements in the last five years for which I have testified at trial or by deposition:

2015. February 26: Expert report regarding Sony VAIO Computer Notebook Trackpad Litigation United States District Court, Southern District of California, Case No. AJB 09cv2109 AJB (MDD). Deposition on behalf of Sony Electronics, Inc.

2015. July 30: Expert report and declaration regarding Yahoo Mail class action litigation, United States District Court, Northern District of California San Jose Division, Case No. 5:13-CV-4980-LHK. Deposition on behalf of Plaintiffs.

2015. September 10: Expert rebuttal report regarding Yahoo Mail class action litigation, United States District Court, Northern District of California San Jose Division, Case No. 5:13-CV-4980-LHK. Deposition on behalf of Plaintiffs.

2019. May 2019 Engaged on behalf of Defendant. Testified at trial. United States District Court For The Northern District of Illinois United States V. Jeffrey Batio 16 Cr 425

2020. September 10 Harte Hanks, Inc., Plaintiff V. Juan Castaneda, Lima Tech Group, LLC, and Primus Intellectual Solutions, LLC, In The United States District Court for The Southern District Of Florida, Ft. Lauderdale Division Case No. 0:19-CV-62134-RAR/Strauss. Deposition on behalf of Defendant Primus Intellectual Solutions, LLC.

2020. October 13 Harte Hanks, Inc., Plaintiff V. Juan Castaneda, Lima Tech Group, LLC, and Primus Intellectual Solutions, LLC, In The United States District Court for The Southern District Of Florida, Ft. Lauderdale Division Case No. 0:19-CV-62134-RAR/Strauss. Deposition on behalf of Defendant Primus Intellectual Solutions, LLC.

Publications

Non-Fiction - Digital Format only

Robert J. Sherwood

12015 Wenonga Ln, Leawood, Kansas 66209 - 913-269-6589 -

webtalkwithbob@gmail.com

A Basic Guide to Finances

A Basic Guide to Investing in Private Companies

A Basic Guide to Management

A Basic Guide to Legal Issues

A Basic Guide to Public Speaking

A Basic Guide to Key Business Terms

A Basic Guide to Job Hunting

A Basic Guide to Marketing Strategies

A Basic Guide to Employee Policies

A Basic Guide to Making Money on Your Idea

Non-Fiction - Print and Digital Format

Success Keys From Silicon Valley - 59 Must Know Terms for Entrepreneurs, Silverbear Graphics, Stahlstown, PA 15687, 2010.

Personal and Business Forms for Most Every Important Situation, Silverbear Graphics, Stahlstown, PA 15687, 2011.

Editor: Entrepreneurs: You Can't Afford the School of Hard Knocks, Center for Business Innovation, 1995.

Contributing author: Growing New Ventures, Creating New Jobs, Entrepreneurship: Principles and Practices, Quorum Books, Westport, Connecticut-London, 1995.

Fiction - Print and Digital Format

In My Opinion: The PM Note, Silverbear Graphics, Stahlstown, PA 15687, 2010.

The Brain Brokers, Silverbear Graphics, Stahlstown, PA 15687, 2011.

Pandora's Prisoner, Silverbear Graphics, Stahlstown, PA 15687, 2011.

An Unforgivable Act, Silverbear Graphics, Stahlstown, PA 15687, 2014

Appendix B

MATERIALS CONSIDERED

In addition to the materials expressly cited in my March 12, 2021 report and analysis, I have reviewed the following list of materials:

Litigation Materials

Facebook's Complaint, ECF No. 1

Declaration of Mike Clark, with Exhibit 1, ECF No. 41

Declaration of Sanchit Karve in Support of Plaintiff's Opposition to Defendants' Ex Parte Motion for a Temporary Restraining Order, with Exhibits 1–3, ECF No. 42

Order Regarding Motion for Temporary Restraining Order, ECF No. 58

Transcript from the October 26, 2020, Hearing 2020-10-26

BrandTotal's Amended Counterclaims, ECF No. 119

DISCOVERY MATERIALS

Facebook's Responses and Amended Objections to BrandTotal's First Set of Requests For Production, dated December 23, 2020

Facebook's Responses and Amended Objections to BrandTotal's First Set of Requests For Admission, dated December 23, 2020

Facebook's Responses and Amended Objections to BrandTotal's First Set of Interrogatories, dated December 23, 2020

Facebook's Responses and Amended Objections to BrandTotal's Notice of Deposition Pursuant to Rule 30(b)(6), dated December 23, 2020

Facebook's First Supplemental Response to BrandTotal's First Set of Interrogatories, dated January 5, 2021

Facebook's Second Supplemental Response to BrandTotal's First Set of Interrogatories, dated January 12, 2021

Facebook's Third Supplemental Response to BrandTotal's First Set of Interrogatories, dated February 5, 2021

BrandTotal's Responses to Facebook's First Set of Requests For Admission, dated December 23, 2020

BrandTotal's Responses to Facebook's First Set of Interrogatories, dated December 23, 2020

BrandTotal's Supplemental Responses to Interrogatory Nos. 1, 2, and 4–6, dated January 5, 2020

BrandTotal's Second Supplemental Response to Facebook's Request For Admissions, dated February 26, 2021

BrandTotal's Second Supplemental Response to Facebook's First Set of Interrogatories, dated February 26, 2021

Transcript of January 12, 2021, deposition of Brandon Silverman

Transcript of January 13, 2021, deposition of Sanchit Karve

Transcript of January 13, 2021, deposition of Oren Dor

Transcript of January 14, 2021, deposition of Alon Leibovich

Transcript of January 15, 2021, deposition of Josh Newman

Transcript of February 10, 2021, deposition of Michael Clark

Transcript of March 10, 2021, deposition of Oren Dor (rough)

Documents Produced by the Parties

BT0001560

FB_BRTL_00014655

FB_BRTL_00016958

FB_BRTL_00017487

Other Materials

Source code for UpVoice Legacy extensions identified in report, hosted on Github.

Source code for UpVoice 2021, identified in report

<https://www.brandtotal.com/>

www.facebook.com

<https://info.brandtotal.com/paid-social-snapshot-report-automobile>

www.joinupvoice.com

<https://www.joinupvoice.com/faq>

https://privacy.joinupvoice.com/privacy_policy.pdf

<https://www.joinupvoice.com/tos#toc-5-data>

<https://adguard.com/en/blog/unimania-spyware-campaign/>

<https://www.facebook.com/business/m/interest-targeting>

https://www.facebook.com/your_information

<https://www.facebook.com/ouraring/posts/3792089577554053>

<https://support.google.com/chrome/answer/6130773>

<https://crxcavator.io/>

Appendix C: UpVoice Privacy Policy

Appendix D: Version numbers of kkcbaid... result from crxcavator.io search for UpVoice
(2.10.1377; 2.10.1387; 2.10.1388; 2.10.1389; 2.10.1391; 2.10.1396; 2.10.1397;
2.10.1398; 2.10.1410; 2.10.1413; 2.10.1415; 2.10.1425; 2.10.1428; 2.10.1430;
2.10.1439; and 2.10.45)

Appendix E: Version numbers of bmngk... result from crxcavator.io search for UpVoice
(2.10.1413; 2.10.1425; 2.10.1428; 2.10.1439; and 2.10.1445)

Appendix F: Version number of igffacin... result from crxcavator.io search for UpVoice
(2.10.1445)

Appendix G: Exhibit 1 to the Newman Deposition, Facebook's prepared "Testimonial Aid"

Appendix H: Exhibit 23 to the March 10 Deposition of Oren Dor, BrandTotal's prepared
"Testimonial Aid"

Appendix C

BRANDTOTAL LTD.
UPVOICE PRIVACY POLICY

Last updated: December 8, 2020

This Privacy Policy governs how we, BrandTotal, Ltd. and its affiliates (“**BrandTotal**”, “**UpVoice**”, “**we**”, “**our**” or “**us**”), use Personal Data that we collect, receive and store in connection with your use of UpVoice, BrandTotal’s online and/or mobile marketing research panel/s (“**Panel**”) which is operated through a Window Edge Extension or Windows application (collectively, the “**Panel App**”). We collect, receive and store pertaining to you (“**you**”) in connection with the following use cases:

- (i) When you browse or visit our website, <https://www.joinupvoice.com/> (“**Website**”);
- (ii) When you make use of, or interact with, our Website
 - a. When you sign up for an Upvoice account and login
 - b. When you contact us
- (iii) When you make use of the Panel App for its intended use
 - a. When you use our “refer a friend” functionality

Please read this Privacy Policy carefully, so you can fully understand our practices in relation to Personal Data as well as non-personal data that we collect, use and store. “**Personal Data**”, or “**personal information**” means any information that can be used, alone or together with other data, to uniquely identify any living human being.

Table of contents:

1. [What information we collect, why we collect it, and how it is used](#)
2. [Period of storage of personal data](#)
3. [How we protect your information](#)
4. [Who we share your data with](#)
5. [Additional information regarding transfers of personal information](#)
6. [Privacy rights.; how to delete your account](#)
7. [US privacy provisions](#)
8. [Children's privacy](#)
9. [Log files](#)
10. [Analytics tools](#)
11. [Links to and interaction with third party products](#)
12. [How to contact us; Representative in the European Union](#)

This Privacy Policy may be updated from time to time and therefore we ask you to check back periodically for the latest version of the Privacy Policy. If we implement significant changes to the use of your personal data in a manner different from that stated at the time of collection, we will notify you by posting a notice on our Panel App or by other means.

BrandTotal provides an application with data/marketing intelligence and insights into their advertising practices as well as those of their competitors to its customers (the data and insights are always anonymized and does not contain any Personal Information) (the "BrandTotal Services"). For the avoidance of doubt, for the purposes of this Privacy Policy, a "Customer" is an entity which has executed an agreement with BrandTotal.

1. WHAT INFORMATION WE COLLECT, WHY WE COLLECT IT, AND HOW IT IS USED

We collect the following Personal Data:

Personal Data we collect	Sources - where we obtain the personal information from (CCPA only, if applicable)	Why is the data collected and for what purposes?	Legal basis for data collection (GDPR only, if applicable)	Third parties with whom we share your data	Consequences of not providing the data
<i>When you browse or visit our Website</i>					
Cookies, analytic tools and log files For additional information about our cookie policy, please see http://privacy.brandtotal.com/cookie_policy.pdf .	We collect this information from you	When you make use of our Website, we will collect information from cookies implemented by third parties, in order to improve our Website and enhance your user experience.	Consent Legitimate interest (e.g., essential cookies)	3 rd party platforms such as for the following purposes: • Google Analytics For additional information about our cookie policy, please see http://privacy.brandtotal.com/cookie_policy.pdf .	Cannot improve our Website and your user experience.
<i>When you make use of, or interact with, our Website</i>					
<i>When you sign up for an account and login</i>					
We collect the following personal data as part of your registration/qualification	We collect this information from you	• To verify your eligibility for participation in the Panel and use of the Panel App;	Performance of a contract to which the data subject is party or in order to	3 rd party platforms such as for the following purposes:	Cannot verify your eligibility to participate in the Panel;

<p>to the Panel (via the Panel App):</p> <ul style="list-style-type: none">(i) Name (first, last);(ii) Email address;(iii) Date of birth(iv) Gender(v) Relationship status(vi) country(vii) City(viii) State (US only); and(ix) General demographic and profile information, which we collect from you from the qualification form.	<ul style="list-style-type: none">• To create your account in the Panel App;• To communicate with you regarding your participation in the Panel	<p>take steps at the request of the data subject prior to entering into a contract (our Terms of Service, available at https://joinupvoice.com/tos). Legitimate interest (e.g., to verify you eligibility for participation in the Panel)</p>	<p>(i) Tremendous: Third party provider of vouchers/ coupons/gift cards or other rewards that you chose to redeem your rewards</p> <p>(ii) Gmail for Business</p> <p>(iii) Webflow - website builder</p> <p>(iv) Mandrill - a marketing platform</p> <p>(v) Mailchimp - a marketing automation platform</p>	<p>Cannot create an account in the Panel;</p> <p>Cannot communicate with you regarding your participation in the Panel;</p>
	<ul style="list-style-type: none">• To verify your eligibility to participate in promotions, sweepstakes, raffles and special offers that BrandTotal may, at its discretion, choose to offer from time to time in connection with the Panel and/or Panel App (“Promotions”) and to receive any benefits, discounts and/or rewards that BrandTotal chooses to offer in connection with such Promotions• To provide you with access to, and the ability to participate in, Promotions, if you are eligible• To notify you if you are eligible or have won any benefits, discounts and/or rewards that BrandTotal	<p>Consent</p>	<p>(vi) Logrocket - a platform for user sessions</p> <p>(vii) Amazon Web Services (AWS) and Microsoft Azure - storing your Personal Data.</p> <p>(viii) MongoDB Atlas – managed cloud database provider</p>	<ul style="list-style-type: none">• Cannot verify your eligibility to participate in Promotions and to receive any benefits, discounts and/or rewards that BrandTotal chooses to offer in connection with such Promotions• Cannot provide you with access to, and the ability to participate in, Promotions, if you are eligible• Cannot notify you if you are eligible or have won any benefits, discounts and/or rewards that BrandTotal chooses to offer in connection with such Promotions• Cannot offer and provide you with benefits, discounts and/or rewards that BrandTotal may offer in

		<ul style="list-style-type: none">chooses to offer in connection with such Promotions• To offer and provide you with benefits, discounts and/or rewards that BrandTotal may offer in connection with Promotions if you are eligible			connection with Promotions if you are eligible
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<i>When you download and make use of the App for its intended use</i>					
We collect the data when you become an eligible Panel member, after you have installed the Panel App and throughout your participation in our Panel when you use third party application and/or websites, such as Facebook, Instagram, Twitter, YouTube and Amazon: <ul style="list-style-type: none">• A randomly generated device ID and user ID;• Data about sponsored campaigns, sponsored posts or advertisements that target you directly or that have been shared with you;• General demographic and profile	We collect this information from you	<ul style="list-style-type: none">• To offer and provide you with gift cards in connection with your use of the Panel App (directly or via third party providers).• To monitor, identify, analyze and research marketing campaigns and audience analytics from data it collects from your panel.• To anonymize your profile data.• To use the anonymized data for the purpose of providing our Customers with data intelligence and insights into their advertising practices as well as those of their competitors	Necessary to perform a contract or take steps, at your request, to enter into a contract. In particular, this includes our Terms of Service, available at https://joinupvoice.com/tos .	3 rd party platforms such as for the following purposes: <ul style="list-style-type: none">(i) Gmail for Business(ii) Webflow - website builder(iii) Mandrill - a marketing platform(iv) Mailchimp - a marketing automation platform(v) Logrocket - a platform for user sessions(vi) Email service providers, like Gmail for Business for communicating with you(vii) Amazon Web Services (AWS) and Microsoft Azure for storing your Personal Data.(viii) MongoDB Atlas – managed cloud database provider	<p>Cannot offer and provide you with gift cards in connection with your use of the Panel App (directly or via third party providers).</p> <p>Cannot monitors, identifies, analyzes and researches marketing campaigns and audience analytics from data it collects from Panel your panel.</p> <p>Cannot anonymize your profile data.</p> <p>Cannot use the anonymized data in for the purpose of providing our Customers with data intelligence and insights into their advertising practices as well as those of their competitors</p> <p>Cannot participate in our online and/or mobile marketing research Panel</p>

information from your Facebook profile, like your age, your gender, where you live (by region), your relationship status and your general interests, and Additional information you may provide when you answer certain survey questions.		<ul style="list-style-type: none">● To participate in our online and/or mobile marketing research Panel			
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Finally, please note that some of the abovementioned personal data will be used for fraud detection and prevention, and for security purposes. The abovementioned personal data may also be used to comply with applicable laws, with investigations performed by the relevant authorities, law enforcement purposes, and/or to exercise or defend legal claims.

2. PERIOD OF STORAGE OF PERSONAL DATA

2.1 Retention Personal Data. Your Personal Data will be stored until: (i) we no longer need the information and proactively delete it; or (ii) you send a valid deletion request. Please note that we will retain it for a longer or shorter period in accordance with data retention laws. In some circumstances we may store your Personal Data for longer periods of time, for example (i) where we are required to do so in accordance with legal, regulatory, tax or accounting requirements, or (ii) for us to have an accurate record of your dealings with us in the event of any complaints or challenges, or (iii) if we reasonably believe there is a prospect of litigation relating to your Personal Data or dealings.

2.2 Additional Information on Data Retention. Other circumstances in which we will retain your Personal Data for longer periods of time include: (i) where we are required to do so in accordance with legal, regulatory, tax or accounting requirements, or (ii) for us to have an accurate record of your dealings with us in the event of any complaints or challenges, or (iii) if we reasonably believe there is a prospect of litigation relating to your personal data or dealings. We have an internal data retention policy to ensure that we do not retain your personal data perpetually.

3. HOW WE PROTECT YOUR INFORMATION

We have implemented appropriate technical, organizational and security measures designed to reduce the risk of accidental destruction, loss or the unauthorized disclosure or access to your Personal Data and non-personal data. However, please note that we cannot guarantee that the information will not be exposed as a result of unauthorized penetration to our servers, computers or network. Nevertheless, we make commercially reasonable efforts to make the collection, storage and security of such information consistent with this Privacy Policy and all applicable laws and regulations.

4. WHO WE SHARE DATA WITH

We share the data that we collect in the following ways:

- 4.1 Through the use of our data intelligence and insights products, we share data on an aggregated, non-personal basis with our customers, partners and any of their affiliates or users, located in various countries around the world.
- 4.2 We share aggregated, non-personal data and insights generated from the data with publications, analysts and other venues, for the purposes of promoting BrandTotal or its affiliates.
- 4.3 To comply with all applicable laws, regulations and rules, (including, without limitation, federal, state or local laws) and requests of law enforcement, regulatory and other governmental agencies or if required to do so by court order.
- 4.4 If, in the future, we sell or transfer some or all of our business or assets to a third party, we will (to the extent required) disclose, transfer or assign information to such third party purchaser, including, without limitation, the Personal Data described above, the anonymized, non-personal data, subject to its compliance with this Privacy Policy. In the event of bankruptcy or a comparable event, we reserve the right to disclose, transfer or assign data in connection with the foregoing events.
- 4.5 In the event that we are acquired by, or merged with, a third party entity, or in the event of bankruptcy or a comparable event, we reserve the right to transfer, disclose or assign your personal data in connection with the foregoing events; and/or
- 4.6 We share your Personal Data with third party voucher/coupon/gift card or other reward providers that you choose to redeem your rewards with.

Other than the situations described above, we will only share your Personal Data with third parties that you have consented to.

5. ADDITIONAL INFORMATION REGARDING TRANSFERS OF PERSONAL INFORMATION

- 5.1 Storage. We store and process the data on servers at Amazon Web Services (AWS) and Microsoft Azure facilities in the United States and the United Kingdom.
- 5.2 Access from Israel: Access from Israel is covered by the European Commission's Adequacy Decision regarding Israel. You can read more here: https://ec.europa.eu/info/law/topic/data-protection/data-transfers-outside-eu/adequacy-protection-personal-data-non-eu-countries_en.

- 5.3 Internal transfers: We securely transfer your data to our local or foreign subsidiaries and affiliates as needed, who are all in compliance with this privacy policy. We ensure transfers within the BrandTotal group will be covered by an agreement entered into by members of the BrandTotal group (an intra-group agreement) which contractually obliges each member to ensure that Personal Data receives an adequate and consistent level of protection wherever it is transferred to;
- 5.4 External Transfers: Where we transfer your Personal Data outside of BrandTotal to third party vouchers/coupons/gift cards or other rewards providers, we will obtain contractual commitments from them to protect your Personal Data.

Where we receive requests for information from law enforcement or regulators, we carefully validate these requests before any Personal Data is disclosed.

6. PRIVACY RIGHTS; HOW TO DELETE YOUR ACCOUNT

6.1 Rights.

6.1.1 GDPR Rights. The following rights (which may be subject to certain exemptions or derogations), shall apply to individuals who are protected by the GDPR:

- You have a right to access Personal Data held about you. Your right of access is normally be exercised free of charge, however we reserve the right to charge an appropriate administrative fee where permitted by applicable law;
- You have the right to request that we amend any Personal Data we hold that it is inaccurate or misleading.
- You have the right to request the erasure of the Personal Data that relates to you. Please note that there may be circumstances in which we are required to retain your data, for example for the establishment, exercise or defense of legal claims;
- The right to object to or to request restriction of the processing. However, there may be circumstances in which we are legally entitled to refuse your request;
- The right to data portability. This means that you may have the right to receive your Personal Data in a structured, commonly used and machine-readable format, and that you have the right to transmit that data to another controller;
- You have the right to object to profiling;
- You have a right to lodge a complaint with your local data protection supervisory authority (i.e., your place of habitual residence, place or work or place of alleged infringement) at any time. We ask that you please attempt to resolve any issues with us before you contact your local supervisory authority
- The right to withdraw your consent, where Personal Data is processed on the legal basis of consent. Please note that there may be circumstances in which we are entitled to continue processing your Personal Data, in particular if the processing is required to meet our legal and regulatory obligations.
- You also have a right to request details of the basis on which your Personal Data is transferred outside the European Economic Area, but you acknowledge that data transfer agreements may need to be partially redacted for reasons of commercial confidentiality.

6.1.2 CCPA Rights. The following rights (which may be subject to certain exemptions or derogations), shall apply to individuals who are protected by the CCPA:

- You have the right to know what personal information is being collected about you in the twelve months preceding your request;
- You have the right to request the erasure/deletion of your personal information (e.g. from our records and the records of our service providers). Please note that there may be circumstances in which we are required to retain your personal information, for example for the establishment, exercise or defense of legal claims;
- You have the right to know whether your personal information is sold or disclosed and to whom;

- You have the right to say no to the sale of your personal information (if applicable);
- You have the right to equal service and price, even if you exercise your privacy rights;
- You have a right to lodge a complaint with your local data protection supervisory authority (i.e., your place of habitual residence, place or work or place of alleged infringement) at any time or before the relevant institutions in your place of residence (e.g. the Attorney General in your State). We ask that you please attempt to resolve any issues with us before you contact your local supervisory authority and/or relevant institution.

6.2 Exercising Your Rights. You can exercise your rights by contacting us at contact@joinupvoice.com or, if you are an individual protected by CCPA, you may also contact us via our online contact form at: <https://www.joinupvoice.com/contact>. Subject to legal and other permissible considerations, we will make every reasonable effort to honor your request promptly or inform you if we require further information in order to fulfil your request. Please note that exercising certain rights may result in your total or partial inability to participate in the Panel and/or benefit from the Rewards. When processing your request, we may ask you for additional information to confirm your identity and for security purposes, before disclosing the Personal Data requested to you. We reserve the right to charge a fee where permitted by law, for instance if your request is manifestly unfounded or excessive, but in any event, under no circumstances will we discriminate against you for exercising any of your CCPA rights.

In the event that your request would adversely affect the rights and freedoms of others (for example, would impact the duty of confidentiality we owe to others) or if we are legally entitled to deal with your request in a different way than initially requested, we will address your request to the maximum extent possible, all in accordance with applicable law.

6.3 How To Delete Your Account. Should you ever decide to delete your account, you may do so by emailing privacy@joinupvoice.com. If you terminate your account, any association between your account and personal data we store will no longer be accessible through your account. However, given the nature of sharing on certain services, any public activity on your account prior to deletion will remain stored on our servers and will remain accessible to the public.

7 US PRIVACY PROVISIONS

7.1 Access Requests. California Civil Code Section 1798.83 permits our customers who are California residents to request certain information regarding our disclosure of Personal Data to third parties for their direct marketing purposes. To make such a request, please send an email to privacy@brandtotal.com. Please note that we are only required to respond to one request per customer each year.

7.2 Our California Do Not Track Notice. We do not track users over time or across third party websites and therefore do not respond to Do Not Track signals. We do not allow third parties to collect personally identifiable information about an individual user's online activities over time and across different web sites when a user uses the Website.

7.3 CCPA Sale of personal information. While we believe that we do not technically meet any of the applicability thresholds specified by the CCPA or that any use of information constitutes a "Sale" under the CCPA, we are committed to providing our Panel Members with as many privacy choices as we reasonably can. Accordingly, If you are a California resident and would like to opt out of the panel, you may do so by following the instructions set forth in Section 6.3 ("How To Delete Your Account") and the Termination clause included in our Terms of Service (available at <https://joinupvoice.com/tos>).

8 CHILDREN'S PRIVACY

We do not offer our Panel App for use by children. If you are under 18, you may not use the Panel App, or provide us with any information without involvement of a parent or a guardian. We do not knowingly collect personal information from, and/or about children. For the purposes of the GDPR, we do not intend to offer information society services directly to children. If you believe that we might have any such personal information, please contact us at privacy@joinupvoice.com.

9 LOG FILES

Log files are automatically created as a result of errors in the code of the Panel App that are stored in log entries. We do not control the data transmitted and we do not store or use this data.

10 ANALYTIC TOOLS

- **Google Analytics.** The Panel App uses a tool called “Google Analytics” to collect anonymized and aggregated information about the use of the Panel App. Google Analytics collects various information, such as what pages the users visit and when they do so, and what other sites they visited. We use the information we get from Google Analytics to derive general insights about the use of the Panel App and for statistical purposes. Google’s ability to use and share information collected by Google Analytics about your use of the Panel App and the Panel App is restricted by the Google Analytics Terms of Service, available at <http://www.google.com/analytics/terms/us.html>, and the Google Privacy Policy, available at: <http://www.google.com/policies/privacy/>. You may learn more about how Google collects and processes data specifically in connection with Google Analytics at <http://www.google.com/policies/privacy/partners/>. You may prevent your data from being used by Google Analytics by downloading and installing the Google Analytics Opt-out Browser Add-on, available at <https://tools.google.com/dlpage/gaoptout/>.
- **Firebase Analytics.** We also use “**Google Analytics for Firebase**”. By enabling this tool, we enable the collection of data about App Users, including via identifiers for mobile devices (including Android Advertising ID and Advertising Identifier for iOS), cookies and similar technologies. We use the information we get from Google Analytics for Firebase to maintain and improve our App(s). We do not facilitate the merging of personally-identifiable information with non-personally identifiable information unless we have robust notice of, and your prior affirmative (i.e., opt-in) consent to, that merger. Finally, please note that Google Analytics
- **AppsFlyer.** We use a tool called “**AppsFlyer**”, a mobile attribution and marketing analytics platform to understand the use of our services. AppsFlyer is exposed to the following data: (i) unique identifiers and technical data, such as IP address, User agent, IDFA (Identifier For Advertisers) or Android ID (in Android devices); and (ii) technical data regarding your operating system, device attributes and settings, applications, advertising opt-out signals, Google Advertiser ID, in-app events, device motion parameters and carrier. The use of this data allows us to analyze our campaigns and performance, as well as your habits and characteristics. For example, the data AppsFlyer receives includes downloads, impressions, clicks and installations of their mobile applications, mobile device use and data regarding in-app events. AppsFlyer’s terms of use (available at <https://www.appsflyer.com/terms-of-use/>) and privacy policy (available at <https://www.appsflyer.com/privacy-policy/>) also apply to the use of AppsFlyer.
- **Facebook Pixels and SDKs.** We use Facebook pixels or SDKs, which are tools that provide help to website owners and publishers, developers, advertisers, business partners (and their customers) and others integrate, use and exchange information with Facebook, as such the collection and use of information for ad targeting. Please

note that third parties, including Facebook, use cookies, web beacons, and other storage technologies to collect or receive information from your websites and elsewhere on the internet and use that information to provide measurement services and target ads. Facebook's ability to use and share information is governed by the Facebook Tools Terms, available at: https://www.facebook.com/legal/technology_terms/. You can prevent your data from being used by Facebook Pixels and SDKs by exercising your choice through these mechanisms: <http://www.aboutads.info/> choices or <http://www.youronlinechoices.eu/>.

We reserve the right to remove or add new analytic tools.

11 LINKS TO AND INTERACTION WITH THIRD PARTY PRODUCTS

The Panel App may enable you to interact with or contain links to other third party websites, mobile software applications and services that are not owned or controlled by us (each a "Third Party Service"). We are not responsible for the privacy practices or the content of such Third Party Services. Please be aware that Third Party Services may collect Personal Data from you. Accordingly, we encourage you to read the terms and conditions and privacy policy of each Third Party Service that you choose to use or interact with.

12 HOW TO CONTACT US; GDPR REPRESENTATIVE IN THE EUROPEAN UNION

12.1 For more information or for exercising your rights, please contact us at contact@joinupvoice.com. Subject to legal and other permissible considerations, we will make every reasonable effort to honor your request promptly or inform you if we require further information in order to fulfil your request.

12.2 Pursuant to Article 27 of Europe's General Data Protection Regulation (GDPR), BrandTotal has appointed European Data Protection Office (EDPO) as its GDPR representative in the EU. You can contact EDPO regarding matters pertaining to the GDPR by sending an email to privacy@edpo.brussels, using EDPO's online request form, or writing to EDPO at Avenue Huart Hamoir 71, 1030 Brussels, Belgium.

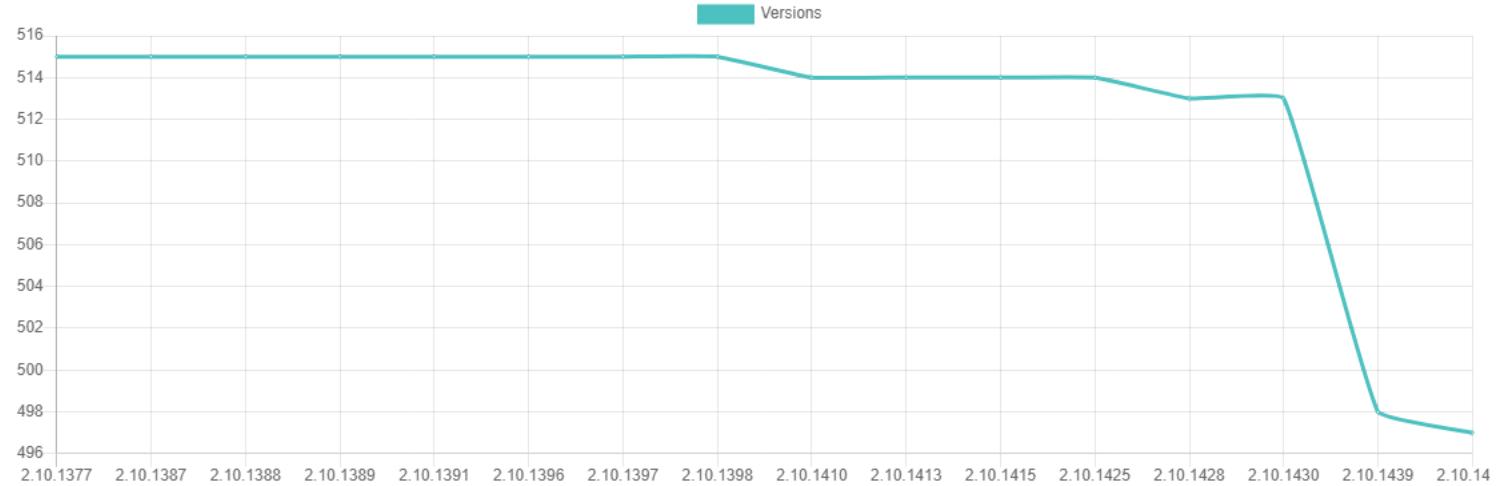
Appendix D



Recent Scans for UpVoice

Version	Risk Score
2.10.1377	515
2.10.1387	515
2.10.1388	515
2.10.1389	515
2.10.1391	515
2.10.1396	515
2.10.1397	515
2.10.1398	515
2.10.1410	514 ↓ (-1)
2.10.1413	514
2.10.1415	514
2.10.1425	514
2.10.1428	513 ↓ (-1)
2.10.1430	513
2.10.1439	498 ↓ (-15)
2.10.1445	497 ↓ (-1)

Risk Over Time

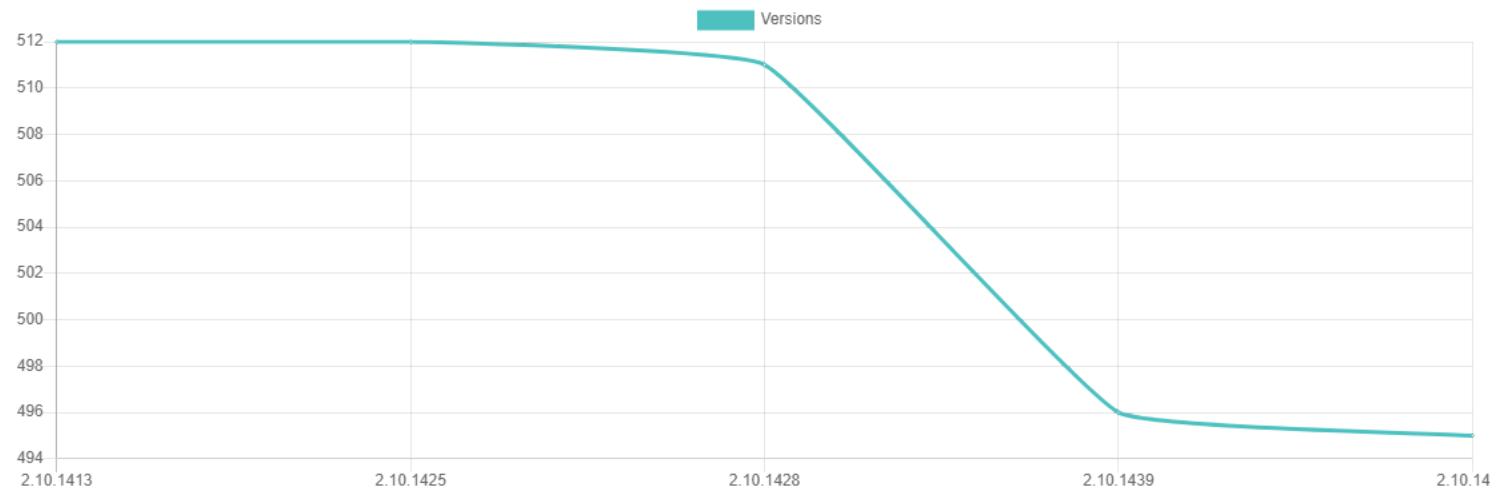


Appendix E

Recent Scans for UpVoice

Version	Risk Score
2.10.1413	512
2.10.1425	512
2.10.1428	511 ↓ (-1)
2.10.1439	496 ↓ (-15)
2.10.1445	495 ↓ (-1)

Risk Over Time



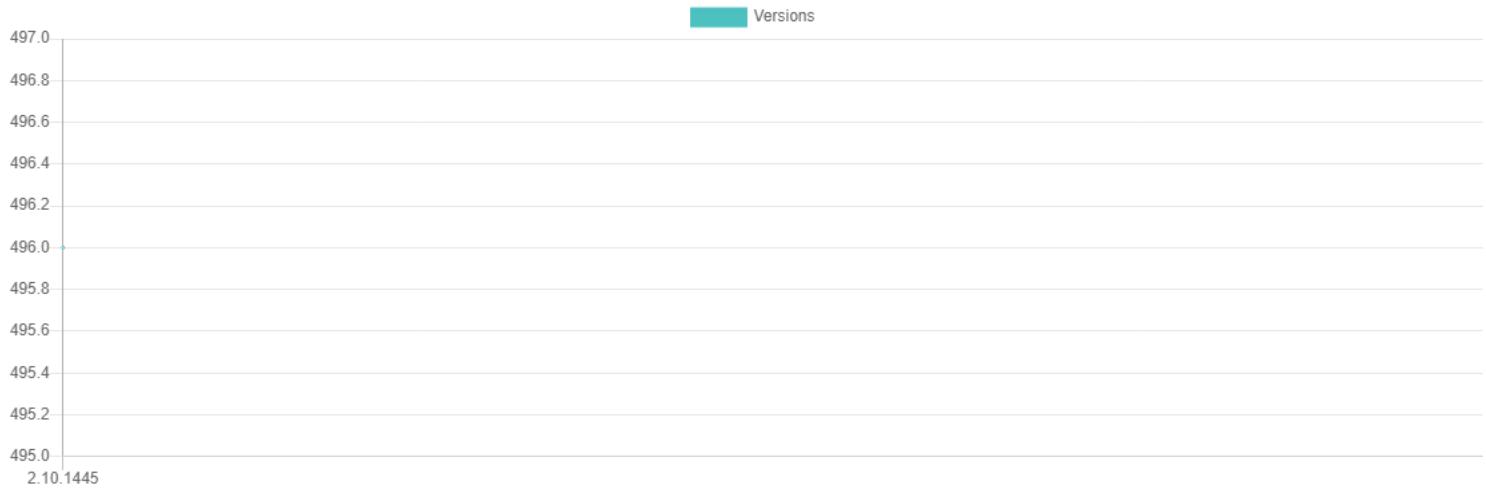
Appendix F



Recent Scans for UpVoice

Version	Risk Score
2.10.1445	496

Risk Over Time



Appendix G

*Facebook v. BrandTotal, No. 3:20-cv-07182-JCS*Testimonial Aid—Deposition of Josh NewmanAds <https://developers.facebook.com/docs/marketing-api/insights/breakdowns>Creative <https://developers.facebook.com/docs/marketing-api/reference/ad-creative/>Ad Library <https://www.facebook.com/ads/library/api>

Source	Data	Source	Field / API
Dor Decl. ECF 69	Gender	Insights API Ad Library (SIEP - API)	Insights API: breakdowns - gender Ad Library (SIEP - API)
Dor Decl. ECF 69	Date of Birth	Insights API Ad Library (SIEP - API) [age, est.]	Insights API: breakdowns - age Ad Library (SIEP - API)
Dor Decl. ECF 69	Location (state)	Insights API Ad Library (SIEP - API)	Insights API: breakdowns - region Ad Library (SIEP - API)
Dor Decl. ECF 69	Location (country)	Insights API Ad Library (API) [sp. country]	Insights API: breakdowns - – country Ad Library (API) [sp. country]
Dor Decl. ECF 69	Relationship Status	[Not supported by Insights API] [Not supported by Ad Library]	
Dor Decl. ECF 69	Geolocation data	Insights API [Not supported by Ad Library]	Insights API: breakdowns - – dma

Dor Decl. ECF 69	Time ad shown to user	Insights API Ad Library (start / stop date for ad) [non-SIEP will not show end date]	Insights API: breakdowns - hourly_stats_aggregated_by_audience_time_zone Ad Library (API - start / stop date for SIEP ad)
Dor Decl. ECF 69	Sponsored post's ID	Marketing API [Not supported by Ad Library]	Marketing API: ad-creative api
Dor Decl. ECF 69	Impressions on ad (likes, shares, comments)	Insights API Ad Library [SIEP only]	Insights API: fields - impressions, actions, cpm (see documentation for full list) Ad Library [API - SIEP only, impressions]
Karve Decl. ECF 42	Who sponsored advertisements	Ad Library	Ad Library [not in API]
Karve Decl. ECF 42	Facebook User ID	[Not provided by Insights API] [Not available in Ad Library]	
Karve Decl. ECF 42	Advertising interests	[Not provided by Insights API] [Not provided in Ad Library]	
Karve Decl. ECF 42	Advertisement's text	Marketing API Ad Library	Marketing API: ad-creative api Ad Library (API - SIEP)
Karve Decl. ECF 42	Advertisement's images	Marketing API Ad Library	Marketing API: ad-creative api Ad Library (API - SIEP)

Karve Decl. ECF 42	Advertisement's videos	Marketing API Ad Library	Marketing API: ad-creative api Ad Library (API - SIEP)
Karve Decl. ECF 42	Advertisement's URL	Marketing API Ad Library [Ad Library-sp URL]	Marketing API: ad-creative api Ad Library (API - SIEP)
Karve Decl. ECF 42	Advertisement's impressions	Insights API Ad Library [SIEP only]	Insights API: fields - impressions Ad Library [API - SIEP only, impressions]
Karve Decl. ECF 42	Advertisement's comments	Insights API [not available through Ad Library]	Insights API: fields - actions (comment action_type)
Karve Decl. ECF 42	Advertisement's shares	Insights API [not available through Ad Library]	Insights API: fields - actions (post action_type)
Karve Decl. ECF 42	Advertisement's reactions	Insights API [not available through Ad Library]	Insights API: fields - action_reactions
Interrogatories	Advertisement's Creative ID	Marketing API [not available through Ad Library]	Marketing API: ad-creative api
Interrogatories	Click through rate	Insights API [not available through Ad Library]	Insights API: fields - ctr

Appendix H

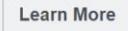
Example sponsored post (<https://www.facebook.com/3597014020409421>):

 **Design Crowdfunding Videos**
February 24 at 1:40 PM · 

This pan is 30% lighter than cast-iron and will outlast any throw-away non-stick coated pan!



KICKSTARTER.COM

Bake, Sear, Sauté, And Fry Up Your Next Culinary Masterpiece 

See it in action on Kickstarter »

  33 20 Comments 1 Share

Exhibit
0023
Dor

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Field	Example	Description
fb_post_entity_id	3597014020409421	Creative ID
fb_post_hashed_entity_id	5e91f58e5f151124e9db3faceaceabbf34c08c32	the post's creative id hashed. Hashed – no actual information collected
fb_post_hashed_content	ad75373bdea5c7de6aad108878cb98421eea2548	Text + type + call to action text + page id of advertisement Hashed – no actual information collected
fb_post_advertiser_page_id	Design-Crowdfunding-Videos-1152288221548692	Advertiser page ID
fb_post_advertiser_page.pretty_name	Design Crowdfunding Videos	Advertiser display name (simple / pretty)
fb_post_advertiser_thumbnail_url	https://scontent-iad3-1.xx.fbcdn.net/v/t1.0-1/cp0/p80x80/14925333_1152289391548575_7282865236068575288_n.png?_nc_cat=102&ccb=3&_nc_sid=1eb0c7&_nc_ohc=nbYvQy4QK_8AX_3_wUA&_nc_ht=scontent-iad3-1.xx&_nc_tp=30&oh=5a8f8667c008c9493fa8527fc0e6f47f&oe=605BB0C5	The advertiser's page thumbnail 
fb_post_text	"This pan is 30% lighter than cast-iron and will outlast any throw-away non-stick coated pan!"	Text from creative
fb_post_img_url	https://scontent-iad3-1.xx.fbcdn.net/v/t15.5256-10/p180x540/151309041_131078415563646_4822677059277209332_n.jpg?_nc_cat=107&ccb=3&_nc_sid=df419e&_nc_ohc=oz-rGi62VEUAX8tbN80&_nc_ht=scontent-iad3-1.xx&tp=6&oh=3e2fa63169e200d7d2d3328fa98c63d2&oe=605C3AFB	URL link to creative of advertisement (image) 
fb_post_actionlink_url	https://jellopads.com/Prepd_chef_skillet-rd-121077443334687.html?ref=jellop&utm_source=jellop&ja=z2aimakj&utm_term=jellop&utm_content=Prepd_chef_skillet-VD06	URL to which user is taken when clicking on the frame around the image
fb_post_call_to_action_url	https://jellopads.com/Prepd_chef_skillet-rd-121077443334687.html?ref=jellop&utm_source=jellop&ja=z2aimakj&utm_term=jellop&utm_content=Prepd_chef_skillet-VD06	URL of the call to action button

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fb_post_call_to_action_text	Learn More	Text of call to action Learn More
fb_post_caption	Kickstarter.com	Domain text for link ads KICKSTARTER.COM
fb_post_attachment_title	Bake, Sear, Sauté, And Fry Up Your Next Culinary Masterpiece	Title text for link ads Bake, Sear, Sauté, And Fry Up Your Next Culinary Masterpiece
fb_post_attachment_description	See it in action on Kickstarter »	Description text for link ads See it in action on Kickstarter »
fb_post_video_url	https://scontent-iad3-1.xx.fbcdn.net/v/t42.1790-4/153568338_482049679471076_7284569106162118869_n.mp4?_nc_cat=110&ccb=3&_nc_sid=985c63&efg=eyJZW5jb2RlX3RhZyI6InN2ZV9zZCJ9&_nc_ohc=44XL07Z5RG0AX8QlHjG&_nc_ht=scontent-iad3-1.xx&oh=4da7c9eb85a8de7bee18a52309adc3e1&oe=603672AB	Video url for video ad
fb_post_video_url_hd	null	Video url in hd for video ad
fb_post_advertiser_page_entity_id	468202813729162	Fixed id of a page
fb_post_video_views	10	Video views count for the ad
fb_post_this_video_views	5	Video Views count specifically for this ad instance
fb_post_engage_angry	5	Reaction count
fb_post_engage_haha	5	Reaction count
fb_post_engage_like	5	Reaction count
fb_post_engage_love	5	Reaction count
fb_post_engage_sad	5	Reaction count
fb_post_engage_wow	5	Reaction count
fb_post_engage_shares	5	Shares count
fb_post_engage_comments	5	Comments count
fb_post_carousel_info	An array of fb_post_carousel_actionlink_url fb_post_carousel_img_url and fb_post_carousel_text	Information about various slides in a carousel ad
eventType	"facebook_post"	Needed for ETL

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fb_post_type	video	Type of post One of the following: offer, video, text, carousel, event, unknown, fb_app, photo, album, gif, lead, link
fb_post_ad_placement	feed	The placement of the ad
User oriented data		
event_time	04/03/2020 17:32:42	The date and time event was seen
browser_time_zone	-3	Time zone diff from UTC
device_id	7be6ae15c169852c84f5829c579201b6516ad3f57d92d8aa6e29aeece1de	A randomly generated id (with random salt)
user_agent	Mozilla/5.0 (Macintosh; Intel Mac OS X 11_2_1) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/88.0.4324.182 Safari/537.36 Edg/88.0.705.74	The user agent
extension_id	ldemaeidicopeefcfcmnieobjdho	Id of the host
extension_version	2.2.2	The version of the host
meta_user_hashed_id	151d9efd8e74045b6ca2d9f8e245d7d8e9db91a5	A hashed value of our internal id (with random salt)
geo_current_location.metro_code	512	DMA code of the current location of the user (Geo to IP)
geo_current_location.country	United States	Geo to IP
geo_current_location.country_iso	US	Geo to IP
geo_current_location.state	NY	Geo to IP
geo_current_location.region	null	Geo to IP, general location ("state-like" outside of the U.S.)
meta_current_state_or_country	New York	Panelist's state
meta_gender	Male	Panelist's gender
meta_dob_month	2	Panelist's month of birth
meta_dob_year	1974	Panelist's year of birth
meta_relationship_status	Married	Panelist's relationship status

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third_party_id	null	An id to track if panelist came through a specific funnel
fb_post_is_sponsored	true	Always true
parser_version	4.10.1452	Parser version
parser_type	desktop-v2	Parser type

All other fields are deprecated and always "null".